Printed at Universal Advertisers E/2, Jhandewalan Extn, New Delhi-110055 and Published by the Director, Publications Division, Patiala House, New Delhi-110001

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ARUNACHAL PRADESH

of the hinterland.

Inside a home

high mountain ridge, they must be at home to cook the night meal On the way to the farm and back, a longish track up and down hills, her hands are busy spinning on a simple spindle, or weaving an intricate grass garland Nightfall is at six.

This land demands simplicity, courage, hard work But what overwhelms a visitor is the highlanders' hospitality A guest among the Adis is plied not only with food and drink but with song and dance also. The girls line up at his arrival and sing the *Ponung*, the welcome song. At departure, they sing again, but with the lilt gone, their gladness of heart replaced with sober thoughts of the perils the traveller might encounter on his

Reaffirming Faith in the Power of the People

PRIME MINISTER CALLS FOR POLL VERDICT

IT IS SOME time since I last spoke to you on the Radio. However, through my continuous travels in various parts of the country and through the groups and large number of individuals whom I meet in Delhi and elsewhere, I have continued to be in close touch with you all. Your support, your affection and your trust enable me to serve India to the best of my ability

On my journeys up and down the country I have been glad to find that our people have shaken off the sense of defeatism and gloom There is a new pride in being Indian. Indeed it can be said that in the year just completed, the nation has rediscovered its sense of purpose and its potential strength.

Some eighteen months ago, our beloved country was on the brink of disaster. Violence was openly preached. Workers were exhorted not to work, students not to study, and Government servants to break their oath. National paralysis was propagated in the name of revolution. The democratic way would have been to work towards the next elections, which were not far off.

Government had to act and did act. Without purposive Government, a nation, specially a developing one, cannot survive. At that time I made it clear that the restrictions imposed would be temporary. They have been gradually eased. The leaders and many of the rank and file, who had been detained, have been released For some time past Press censorship has been relaxed and newspapers have been reporting the activities of people and Parties. Restrictions could have been lifted earlier, had violence and sabotage been given up, had there been no attempt to stir up communal and other unrest.

This discipline and feeling of hope enabled us to initiate and pursue many policies to help those sections of the population who had not greatly benefited from development plans. The Constitution has been amended to remove impediments to policies which are designed to serve the people We have also undertaken programmes to combat social evils such as dowry, which is a burden on our middle classes, and family planning, which aims at healthier and better-cared-for children. Any act of compulsion or harassment will be dealt with severely

May I remind you that the Emergency was proclaimed because the nation was far from normal. Now that it is being nursed to health, we must ensure that there is no relapse.

Normality means the orderly conduct of business. This is possible only if people live by certain codes and norms of behaviour. Democracy also has certain rules. Government functioning cannot be obstructed. None should imperil the welfare of any section of the people or the safety of the nation. If India is to live and prosper, there can be no preaching of hatred, no practising of violence, on encouragement of subversive activities, or lowering of standards of public life.

The economic situation has vastly improved. Others are studying our anti-inflation strategy. Production has increased, thanks mainly to the new spirit of dedication which we see in our farmers, in our industrial workers, and in our scientists, technicians, managers and administrators. The public has co-operated

inspite of difficulties. We have resumed work on many development plans which had been interrupted by the economic crisis and political disturbances. The Twenty-Point and Five-Point Programmes have shown tangible results. Even though much remains to be done, they have generated an attitude of confidence, and have galvanised young and old. In spite of criticism, there is a new respect for our country abroad.

I am conscious of the difficulties which farmers, industrial workers and some other sections of our population are experiencing. We are studying each problem so as to find quick solutions. Cyclone, drought and floods have caused hardship in some areas. My sympathy to all those affected. In recent months prices of a few commodities have slightly increased. But we have already initiated corrective action, which will soon show results.

We have the largest grain stocks in years. Elements which wish to stir up economic trouble will be sternly dealt with. As long as there is close co-operation between Government and the people, our economic battles can and will be won.

Anyone can see that today the nation is more healthy, efficient and dynamic than it had been for a long time. The question now before us is how to restore substantively those political processes on which we were compelled to impose some curbs.

Change is the very law of life. This is a time of great fluidity in the world. Contemporary society is beset with dangers to which developing countries are especially vulnerable. Hence all change must be peaceful. This is the legacy of our freedom struggle and of Mahatma Gandhi and Jawaharlal Nehru .

Our system rests on the belief that governments derive their power from the people, and that the people give expression to their sovereign will every few years, freely and without hindrance, by choosing the government they want and by indicating their preferences for policies. The government so chosen has their complete mandate to carry out such policies.

The present Lok Sabha was elected in 1971. The clear-cut mandate of the people enabled the country to meet a combination of challenges—those created by the events in Bangladesh, by the international economic crisis, by the drought of 1972-73 and by the political events of 1974-75. Legally, the present Lok Sabha can continue for another 15 months.

But we also strongly believe that Parliament and Government must report back to the people and seek sanction from them to carry out programmes and policies for the nation's strength and welfare.

Because of this unshakable faith in the power of the people, I have advised the President to dissolve the present Lok Sabha and order fresh elections. This he has accepted. We expect polling to take place in March.

The rules of the Emergency are being further relaxed to permit all legitimate activity necessary for recognised parties to put forth their points of view before the people. I earnestly counsel political parties to eschew violence and refrain from vilification a calumny. People should neither believe in nor give currency to rumours and gossip.

Every election is an act of faith. It is an opportunity to cleanse public life of confusion. So let us go to the polls with the resolve toreaffirm the power of the people and to up hold the fair name of India as a land committed to the part of reconciliation, peace and progress.

My good wishes to you. for the people of India, may 1977 prove to be a year of added stability, strength and continuing achivement. ☐

DEDICATION

On this Twenty Seventh Birth Anniversary of India's Constitution as a Republic

YOJANA

Dedicates this Special Number to the land and people of

ARUNACHAL PRADESH

as a token of appreciation to the wisdom and courage with which India's tribal communities have been labouring to span the gulf of centuries

YOJANA

Volume XXI/I, Number 1
New Delhi
January 26, 1977
6 Magha1898

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati; Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan, but is not restricted to expressing the official point of view

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Subscription ; Annual—Rs 18, Two years—Rs. 30, Three years—Rs. 42, **Foreign Subscriptions.** One year—£2.70 or $5 50 Two Years—£4.50 or $9 00. Three Years—£6 30 or 12.50 Single copy—eight pennies or $0 25.

Cover Picture : P.K. Kapoor
Lay-out : Jiwan Adalja

IN THIS ISSUE

ERRATA
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ARUNACHAL PRADESH

A YOJANA *Survey of a people and a land leaping the centuries into modernity*

Text : SIDDHARTHAN KARIYAL
Photographs : P.K. KAPOOR

LIKE MESOZOIC REPTILES looked in mortal combat, the hills of the Lesser Himalayas march against the sky.

Young and still growing, these hills are meat for vegetation and not for usurping man. Yet successive waves of humanity came here, Tibetans from the north, Tais from the east and many races of plains people from the south have commingled and have made these mountainous belts of snow, pine and torrid rain forests their homes for centuries.

And for centuries they were held captive by the hostile environment. Their success in getting a foothold in the hills was also their undoing, for the arduous task of ekingout a bare living from the eternally moist, cold, steep, forested undulations have left them with no surpluses of *elan vital* to roll on to the next stage of development and civilization. Today, because of the forces of geopolitics, the half a million tribesmen and women of Arunachal Pradesh are being helped by the rest of their countrymen to overcome the limitations of history and terrain to leap the gap of centuries, to adopt modern agricultural practices in the place of jhoom' cultivation given up by their cousins in the plains over 10,000 years ago.

Because hill and river cut off a community from its neighbours the people of Arunachal are divided into several tribal groups. Modern engineers cutting strips on the forested mountainsides and turning them into roads fit for wheeled traffic seek to put an end to this ancient isolation. With the dawn of awareness, entire tribal groups living in the more accessible regions of the vast territory are now anxious to forget their disparate nomenclatures and come under one unifying name Many tribe names simply mean 'man' in the tribal languages, they point out. *Nepak*, the plain-dweller, Nemae the plateau-dweller, and *Nishi*, the hillsman, says a welcome song of the Adis may be different because of their speech and letters; yet they are all brothers, sprung from the same father. Endowed

A. Nishi Village

vith rich traditions and myths, al-
nost all the tribes believe in a universal God, the brotherhood of man estifying to the Fatherhood of God.

Despite the fact that in the past enturies the mountains have won against man here, these people have reated enduring beauty in their nyths and songs, and vigour in their rafts and dances. Tantrism in its ntirety is supposed by some anhropologists to have come from the orth-east to Hinduism; in today's ive-and-take, the plainsman, the *Hariyang* and the *Aying*, can give hem the technology to tame the hills nd rivers, and take in return from he hillsmen faculties he himself as lost: a highly evolved attitude owards nature and beauty, to community organisation and cooperaion.

Travelling some 3,000 kilometres in jeeps, wading through mountain streams and climbing hills, never sleeping for more than two nights in the same bed, *Yojana's* Chief Editor S. Srinivasachar, Correspondent Sidharthan Kariyal and Photographic Officer P.K. Kapoor undertook a whirlwind tour of the Union Territory for three weeks and saw the people at close quarters. Everywhere they enjoyed their spontaneous hospitality, shared their rice beer and fried chicken and tried to measure the impact of the past two decades on their isolated lives.

Perhaps, no other region of India has as varied a tapestry of peoples as Arunachal. The Monpas with their Buddhism brought to them not from India but circuitously from China and Tibet; the Khamptis who assimilated the same religion by way of another circuitous route, Burma; the Wanchos living in a cold, wet region but almost alien to clothing, yet bringing forth surprising beauty from their loin looms when dyed cotton is made available to them; the Apatanis withdrawn in their 22-square-kilometre plateau but reaching out to become jet pilots and administrators; the Sherdukpen with their produce marching off to the distant plains every year to meet with immemorial friends; the Nishis exuberant in the face of the forbidding frown of the hills; the Adis, the Mishmis, the Tangsas, the Tagins, the Noctes and many more.

The team brought back eight kilogrammes of typed and printed basic information, over 800 photographs, and impressions to last a lifetime.

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COMMUNICATION AND MAINTENANCE

EXCEPT FOR THAT memorable crashlanding, for years now there has been no major accidents. And the details of that breathtaking bellyscratch spell out the full extent of danger the IAF pilots face in these hills on all days of the year, except on Republic Day, Independence Day and on Mahatma Gandhi's birthday.

With a full load he flew the *Caribou* in a narrow valley between a range of high hills An experienced pilot, he kept a peeled eye for any sign of deterioration in the weather. The slightest doubt and he would have taken the plane high above the hills for a turnabout and return to base. If the weather should pack up, as it often did, after landing, it would have meant an indefinite stay on the remote airstrip till the sky cleared up once again.

The landing was going to be trickier than the flying through the narrow valley. The strip was laid out on the belly of a hill and both ends of the runway suddenly fell off into deep precipices There was no room for any error in judgment. From a thousand feet in the air, the pilot had to aim the nose of his plane, like a sharpshooter in the Olympics, at one of the two parallel lines etched on the edge of the pre cipice. The plane's front wheel had to touch the line marked in front, and the rear wheels the line at the back. That precision, and that alone, would ensure that the plane would stop sufficiently short of the other precipice at the far end of the runway.

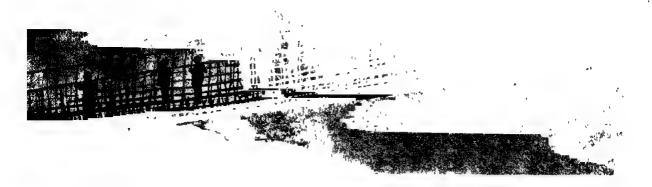
As it happened, the marksman in the cockpit missed his aim that time. The front wheel, instead of coming down on the front line, touched the rear line. The rear wheels of the *Caribou* hit the edge of the precipice and were ripped off. The plane careened to a screeching halt amidst a furious spray of sparks flying from the tarmac....

Air dropping of Civil Supplies by a Dakota in a remote ivilage

After that the IAF has decided that it is easier to walk there than fly there.

Easier? Those who have to do it on 14-day or 18-day foot marches are unlikely to agree. Sometimes the narrow tracks suddenly end at the foot of a tall bamboo ladder. One has to climb the ladder 20 or 30 feet to reach another ledge. The path then leads for a few hundred yards more and once again comes to a sudden halt at the foot of another rickety ladder. Since mules cannot climb ladders, man has to take his own buden on such routes, and there are many such in Arunachal.

If bamboo ladders kept leaning on mountain brows fail to unnerve you, this land of hills and rivers has a few more tricks up its sleeve. The hanging bridges of Arunachal made of cane and indigenous engineering skill look very romantic; in a photograph. Walk on it for 20 feet of its 200 feet overall length, and a sickening swaying begins A hundred feet below you can see every single rock and pebble in the clear bed of the river if it is winter, and a boiling fury of raging waters if it is summer.

Once a Jawan of the Assam Rifles fell through a gap in one such bridge in summer, and his companions recovered his body 20 km downstream. On another occasion, a band of marching officials, all greenhorns, started walking up the bridge in Indian file. There was no local citizen around to warn them that such bridges are taken by one man at a time. Half way through their weights proved to be too heavy and the bridge with its human load came crashing into the shingle bed of the river. Half the marching team ended up with bandages in a hospital, and it had taken their companions a week to carry them there. These

A hanging bridge connecting two hills with a river flowing below in the gorge

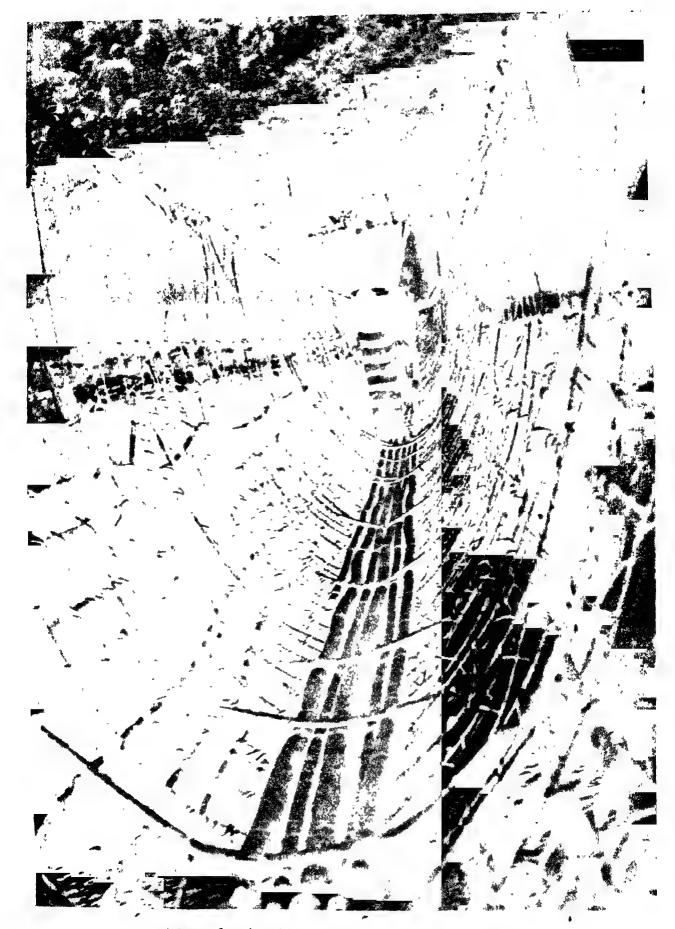
'ays the Government supplies steel ables to strengthen these bridges ınder the Community Development chemes

But there is one category of bridges ›eyond the scope of steel cables in \runachal. It consists of a single trand of a stout cane strung across ı river, with three hoola-hoops ıanging from it. The trick is to .rrange your body as safely and com- ortably as possible in the loops, ıtter a loud prayer, and give a nighty kick to the trunk of the tree vhich supports the cane trapeze. f the prayer and the kick are effec- ıve, you fly to a point somewhere in he middle of the river. From the niddle to the other bank it is your ›are hands that will pull you across. \lthough callouses on the hands are ıseful on such occasions, callouses ıll over the feeling parts of the psyche vould be even more helpful.

The Government of Arunachal, ve were told, were too scared to 'ontemplate the modification and mprovement of these bridges with teel cables, dismissing them as elics of a mad age which had better :nd in more civilized ways. But the 'illage folk loath to walk half a .ilometre upstream where the cross- ng would be simpler on the ground, ›refer the trapezes to civilized pedes- trianism. And these bridges are here to stay, mostly in Lohit.

But these are minor obstacles ompared to what the Digaru and he Lohit do to communications in \runachal's Lohit district. Until he day the earthquake in 1950 shook up these hills, locals say, the Digaru and the Lohit were no more unmannerly than any other moun- tain rivers. After that cataclysm, both the rivers have gone completely berserk. The Lohit even wiped out Parashuram Kund famed through Hindu mythology. At that point where the river enters the plains from the hills, its madness gives rise to one of the most magnificent sights on the face of the earth. The turbu- lent river, so far confined to the steep banks of the hills, finds itself free and spreads itself out in dozens of arms encircling hillocks, islands and clumps of trees. It spends itself for miles like this before becoming a single river once again

On the road to Tezu, Lohit's headquarters, the mindlessness of the Digaru has made for herself a bed one kilometre wide. But on any particular week of the winter months, her body shrunk to a mere fifty metres, she may be occupying any part at random of the kilometre- wide stretch. no one can predict her lay One outcome of this is that engineers are unable to build a road here. One engineer at Tezu, however, hazarded that he could build a bridge here, if not a road, provided the Planning Commission would agree to the expenditure on a span of 15 kilometres, a span wide enough to cross the entire devastated stretch.

A new bridge built in Passighat for the benefit of students going to the University. This bridge was built without the help of cranes and other heavy equipment in a record time of about six months by the C.P.W.D

A close-up of a semi- circular cane bridge built by local people to span two hills.

May be when Arunachal is no longer dependent on this penny-pinching Commission, she would build it, after all! Tezu needs it.

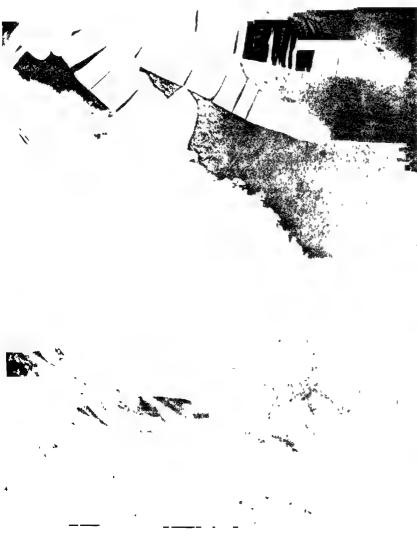
The jeep goes into four-wheel drive and inside it feels more like jumping, grasshopper style. That is the only way to reach Tezu in winter. In summer elephants take over, and Imtiaz Khan, Lohit's young Deputy Commissioner, has to journey this stretch on his way to a meeting at the capital at Itanagar and back to his HQ, like Hannibal on the Alps. Water comes to the very eyes of the brave, surefooted beast picking its careful way, its trunk held aloft, its stoutness resisting the strong current

Elephant, *Caribou,* trapeze-bridge and overused jeeps that suddenly expire in the middle of the forest road- the hazards have not discouraged Arunachal administration from reaching out to its remote outposts. As many as 35 stations, with full administrative machineries in 23 of them, are maintained entirely by airlifted supplies This is

Packaging supplies to be air-lifted is an expensive operation Picture above shows foodgrains being packaged for despatch

Crossing the Lohit or Digaru during floods is hazardous and time consuming In summer the crossing is often done on elephant back.

Above : Packed supplies are being loaded into trucks at Mohanbari to be taken to the airport for dropping operations

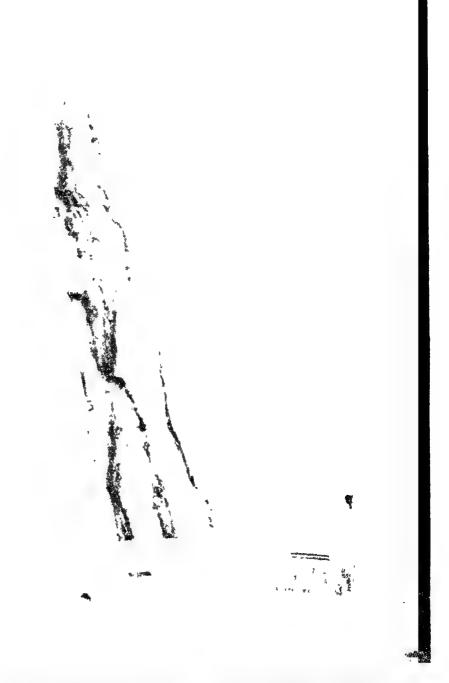
Below . The Subansiri river as it roars its way down the valley The surrounding scenery is fantastically beautiful and awesome.

reputed to be the largest and the most expensive ongoing peace-time air maintenance system anywhere in the world. On the average it costs the government Rs 12 to lift a kilogram of supplies, but expenses could vary widely depending on aircraft used and the location of the dropping zone. Everything from salt to equipment needed by surgeons in the operating theatre are packed according to established air force specifications and kept ready in large warehouses for the pilots to lift according to schedules determined by weather conditions and availability of aircraft.

Whether it is meat on the hoof (goats crated in cages) or galvanised iron sheets or petrol in jerry cans, there are precise ways in which a cargo has to be packaged for a sortie. Grain, for instance, is packed in successive layers of jute bags, one inside the other, five bags for a 50-kg weight and four bags for a 40 kg weight, to resist the impact of a free drop from 200 to 400 ft height. Two types of cotton parachutes are used for more delicate goods, a 28-ft parachute costing Rs 600 for a 150- kg load, and a 18-ft one costing Rs 250 for a 65- kg load. Even a minor flaw in folding a parachute can result in loss or damage. Gangs of packers, 80 of them under a dozen inspectors, prepare the chutes and pack the material throughout the year with only three breaks mentioned at the beginning of this report, to keep the outposts supplied every month with a total of 1,500 quintals of rice, 400 quintals of flour, 225 quintals of sugar, 200 kg of salt, 300 quintals of lentils, 50 quintals of tea, 12,000 litres of kersosene, 1,000 litres of petrol for the generating sets, 5,000 litres of motor oil, besides canned milk, canteen items, medical and engineering stores, pesticides and mail. Each station is expected to maintain at least six months' supplies to meet emergencies. These days, sorties have ceased to supply the outposts with fresh vegetables or meat for the families of men out there who are expected to fend for themselves as far as these items are concerned. The result is that people pay, when fed up to the gills with grain and lentils, as much as Rs 40 for a scrawny chicken or Rs 600 for a small goat when villagers are prepared to sell them. Despite elaborate planning and precautions, an aircraft may dump all rice and no lentils, or *vice versa,* to a settlement and there are occasions when frantic messages are received for help over the wireless network. The

HQ also gets messages notifying the 'death-throes' of oil lamps expiring of 'thirst'. Since everyone in Arunachal is only too well aware of what could be the situation when an outpost runs out of kerosene for its lamps, the HQ does not take offence at such liberties taken with official correspondence', and does everything to keep the lamps in smelly good health.

The worst is when a sad message from a distant home reaches a wireless office. The message can be quickly transmitted to the addressee all right, but there is precious little he can do on receiving it. Before the Brahmaputra bridge was built in Assam, ferries used to transport entire trainloads and the journey used to be resumed from the other bank by another train. In one flood season, an Arunachal official came to his side of the bank to receive his vacationing sister arriving from the other bank. They waited two weeks, for the ferry to resume, but there was no sign of the water subsiding. Finally, time ran out for both the brother and the sister, and they had to call it a day and return home without meeting with each other In Assam now, such stories are heard, no more but in Arunachal people still live in forced nonchalance in many isolated places.

The enormous task of ending this isolation can be completed only in generations, not in the life Span of an individual. A satellite photograph of the eastern lesser Himalayas printed elsewhere in this

In Arunachal women work hard, fetching water and fuel from the forests

As the traveller jeeps his way up or down in Arunachal the spectacles of streams cascading hundreds of feet below is a frequent occurrence. During rains these cascading rivers can become real road blocks.

journal captures in one broads weep as no words can, the impossibly undulating nature of the terrain. If we keep in mind while viewing this picture a basic fact of history, namely, that neither the Chinese, nor the Mauryas nor the Guptas nor the Mughals nor the British, all mighty imperial powers, ever ventured into these hills beyond a point, and allowed the human settlements there to carry on as best they could without the benefit of *pax Britannica* or whatever rule of law, then the task set before our development administrators becomes one of truly historic import; they are pioneers where none of their like had ventured before. But then imperial powers and a democratic republic are not of the same like, either. The British had created an 'Inner Line' in the north-eastern frontier of their colony and had ventured beyond it only occasionally. Their flag-showing marches were more in the nature of authorised brigandage than civilised administration. (The inner line exists today, to keep latter-day brigands out). Even hardy missionaries eager to

of social evolution or in material culture.

The peculiarities of life struggle in the hills are unique. Absence of any extensive level ground means that the people have to cultivate the running slopes themselves. Economists and agricultural experts with the hindsight of several centuries of experience to guide them condemn the practice of jhooming as wasteful and extravagant but the hillsman has little choice. Cutting the forest and setting fire to the undergrowth to make a clearing for a farm works out far cheaper and easier than terracing when human labour is so precious and scarce But this precarious agriculture gives the hill farmer first class grain, rice, to last only three months of the year, and second class grain, millet, to last another three months. Tapioca, chilli, gourds and vegetables, yam and other tubers, even tobacco and illicit opium must all grow side by side on the same plot When this yield runs out, the farmer must turn to hunting and pluck his sustenance from the forest Since animals are also scarce, their husbandry is only for rituals and social transactions.

Since neighbours are strangers in a terrain of this kind, one must live in eternal terror of each other, on dangerously steep hills which command a wide view of any approaching enemy This habitatemeans climbing, often with heavy loads, up to 40 kg of firewood and precious water, which by its nature flows only at the foot of the hills And it is women

Most messages sent in Arunachal are by wireless, a constraint imposed by the terrain

carry the word of the Lord had to beat hasty retreats, or had succumbed.

What fearful forces of history impelled mankind, in the first place to seek shelter in these hills? We do not know Although some historians over that a small wave of plainspeople from the south did once cross the Lohit and settle in the plateau up north, by and large it was the Tai (or Shan) people now inhabiting three or four southern provinces of China, the Burmese uplands, Thailand, Cambodia, Laos, Vietnam,etc., who attempted in the beginning to make these hills their homes And like the Eskimos and the nomads in the deserts, their overspecialisation in attempting to conquer an inhospitable environment proved to be their nemesis. Unable to keep a store of *elan vital* for further development after succeeding in keeping a precarious foothold on a trecherous ground, for centuries they have not been able to advance beyond the tribal stage

Pine-apple flourishes in the Siang District. Below is a pine-apple farm near Along. There is as yet no canning industry to help the farmers. But the Government is planning to establish one.

cultures and languages to the far shores of their domains, and peoples inhabiting confining valleys are compelled to evolve on their own in their own restricted spheres. In Arunachal, some tribal or linguistic groups are confined to less than half a dozen villages, the people numbering not more than a few scores This diversity may be enthralling to the student of linguistics or anthropology, but how compatible are they with present-day concepts of development and social change?

Isolation, certainly, is not compatible with development, but cultural diversity? Giving a philosophy for NEFA some two decades ago Verrier Elwin had declared, and India had accepted that declaration, that it should not be anyone's intention to keep the tribal people as museum pieces. But development, he had said, should not destroy the rich cultural tapestry either.

Elwin's philosophy has been in

The pine-apple of Arunachal is very sweet and luscious. It grows in plenty but marketing the product to the plains of Assam is expensive.

An Apa Tani woman goes to work in the field with the infant cradled on her back or the hip.

who do most of the carrying Men's share of labour covers jungle clearing, hunting, fighting and parleying. Women must also till and sow the ground When childbirth approaches she simply disappears into the undergrowth for an hour and comes back with a new born baby in her arms. After suckling, cooking, firewood-and-water drawing, grain pounding and sleeping if time allows it, she also creates beauty out of dyed cotton yarn when it comes her way.

Man ages early here. We saw eight-year-olds without garments but with long, sword-like knives, the ubiquitous *daos*, dangling from their slender shoulders They can weild it against the earth, against the bamboo, against the snake, against the enemy. Man's momentous inventions like the wheel and the paddle are of no use here. Modern man who has brought the wheels can employ them only at an immense expense Isolation has also meant wayward ignorance on the one hand and close community living on the other.

A vast linguistic diversity is one surprising if inevitable result of this stagnation. While the people are uniformly Indo-Mongoloid, they are divided into, according to one Census report as many as 82 tribal groups. It is one of the accepted notions of historians that while the sea and the open grasslands act as bridges in bringing farflung communities together, hills separate them as no other barrier can. Thus, peoples exercising control over the sea or the continental plains have been enabled by travel to carry their

action in Arunachal for two decades now, and the people have travelled on the road to development to the extent that they now have a representative government of ministers responsible to an assembly. India's republican Constitution that evokes allegiance and not hostility has quite a few things to show for its strength in sustaining diversity in unity in Arunachal's special context; Painstaking and intelligent efforts at preserving the unique art, culture, myth, legend and ethos of these people even if they are drawn into the mainstream of the nation's life; the actual construction under State auspices of temples dedicated to their singular religious convictions; the detailed study of languages with the express objective of providing their native speakers with textbooks

so that their young can have the choice of learning in their own tongues according to the country's three-language formula; the assimilation of old traditions of democracy and local self-government in today's State apparatus, a dedicated band of doctors, engineers, teachers, extension workers, specialists and administrators giving the best years of their lives in the cause of change for the better. And even a Hindu religious missionary establishment cooking and serving animal protein without any prejudices in their school hostels

One often wonders what it was that gave the old ICS hands, the chosen hands of the empire builders, their ability to cope, their steady eyes and steady nerves; their refusal to cave in or crane their necks or raise their voices, their supreme confidence. And we think we got the clue in Arunachal

This Union Territory is still what the old ICS had experienced in much of India in their heydays Here an officer must be prepared not only to ride an elephant through a river to attend a bull session at Itanagar; he must also be thoroughly familiar with the fine weapons of argument and debate when he takes a plane-seat to Delhi to take on experienced adversaries in one of the central ministries or in the Planning Commission, to make them come round to his point of view Armed with the powers of a magistrate, attorney, constable and executant, a Deputy Commissioner in Arunachal must also sit on a straw mat with suit and shoes on to sip the villager's rice beer. He has to bring out with cajolery and charm the best in a village-level worker or in an engineer several years his senior in experience He has to persuade his accomplished wife to cook with firewood a formal evening meal for six or ten

Consider Miss Neeru Nanda. At thirty she is reputed to have a single-track mind: the welfare of her Monpa charges. What with an asthmatic jeep in Bomdi La pining for her mechanic's fondling hands in far-away Tezpur and refusing to budge, we were unable to make it to Tawang in the north extremity of Kameng district where Miss Nanda is Additional Deputy Commissioner. But her reputation kept following us all through Arunachal and people spoke to us of how this courageous officer of the Indian Administrative Service had instituted an informal system of fines and donations by which she collected funds to run a home for old people. Tawang,

A Lama dance before the Tawang Monastery, Kameng District

although steeped in Buddhist traditions of veneration to old people and parents, is today passing through an ugly phase of transition in property rights, and married sons with a need for privacy have taken to expelling their aged parents from their homes. It is a sensitive issue bristling with all kinds of socio-economic and religious factors and there are no ways in which the administration can take formal note of the situation and bring in remedial measures. Although we were unable to verify the facts for ourselves, travellers' tales confirmed that many expelled old people were reduced to homeless living. But a social enormity cannot wait for legislative action and Miss Nanda sought the acquiescence of her subordinates and others to fine them small amounts of money for petty lapses, so that the old people could be kept in rations at least. Miss Nanda's job as Additional Deputy Commissioner does not demand that she cope with evil on a human level; but her acquaintance with the situation screws her head a little more firmly into her heart

Or Mrs P.M. Singh, the Additional Deputy Commissioner at Pasighat. This young IAS officer of the '72 batch may find her Master's degree in geography helpful in acquiring an insight into the special problems of Arunachal, but it is hardly of any use to her when it comes to levelling her domestic life on the basis of normalcy. As mother of a six-months-old boy, a good part of her attention must be for the home Her husband is an officer in the Air Force stationed a few dozen kilometres away and the couple can spend only occasional weekends together. While the expectant journey downstream to meet with him takes three hours, the journey back, upstream, takes twice as long, and immeasureably longer in her loneliness. She is learning to cope with that, too.

A few years of weathering like this and one becomes an adept. Situations of man's making or of nature will not come down on anyone who has gone through it all plenty of times To give some personal examples from Arunachal Pradesh which came to our ken.

Or consider the cheerful doctor couple with the four-year-old identical twins, on their way to a station which is normally reached by a fortnight's footmarch We met them at Mohanbari in Assam when they were waiting for a helicopter to take them to Anini, their place of posting. Having worked for three years in a similar place, the husband knew what he, his wife and the children would be in for. Months on end on air-dropped rations which precluded fresh vegetables or meats; no prospect of an intellectually stimulating atmosphere for their children; no outside company except that provided by a dozen familiar faces; and the villagers themselves looking upon their services as a secondary aid to the shaman's mumjo-umbbo. Still, they were a cheerful couple. when the rest of the country is debating the need for barefoot doc-

The young I.A.S. officers incharge of the Districts and Sub-Divisions of Arunachal Pradesh are a dedicated lot. New to the land and the people whom they have been sent to serve, they have quickly learnt to grapple with the peculiar problems of administration and have earned respect of the local people. Above is Shri I.A. Khan, Deputy Commissioner, Lohit District standing on the sluice gate of a minidam with the Yojana party.

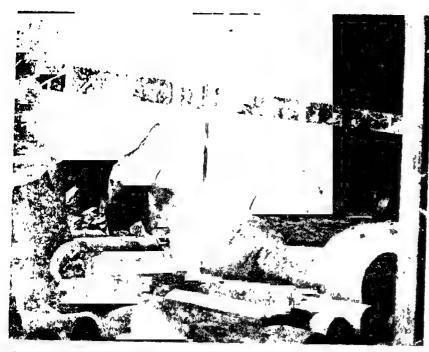
Below is Shri R.C. Rai, Deputy Commissioner, Tirap, inspecting an irrigation project at Khela, 18 km from Khonsa. Built at a cost of Rs. 45,000 in May 1974, it irrigates 182 acres. Much of the labour that went into this project was voluntary. Four more such projects have been built in the District.

tors, they had already logged several hundred kilometres in areas where only faint footpaths led out of hamlets. Dedication, these doctors told us, comes naturally to a man in these hills: When confronted with the simplicity and helplessness of fellow human beings, a man has no choice but to serve as best he can.

But simplicity and helplessness of the forest people and the remoteness of the happenings there, one old hand of Arunachal who was listening to the doctors warned us, have also worked to the detriment of the Territory in the past. There was a time when development had not acquired the edge it is acquiring today, and administrators assigned to the Territory felt cast out and saw in their situation only an opportunity to cart away ivory, to fiddle the books and replace rum bottles with broken glass in airdropping sorties entrusted to contractors, and to build houses for themselves in far away places. But today, the bystander agreed, what with the receiving end becoming a little more alert and inclined to give it back, there is more compulsion all round for the corrupt to square their consciences with the lot of their fellow citizens Vigilantism may be a horrid thing, but a little vigil goes a long way, we also agreed

However, in Lohit's dedicated Deputy Commissioner Imtiaz Khan's predicament, one can see a situation far more crucial to planned development than any petty corruption can ever be.

With 24,000 square kilometres, Lohit, along with Siang, is one of the largest districts of Arunachal. But its meagre total of 63,000 men and women makes it one of the least populated areas anywhere in the country, with a density of only three persons to the square kilometre. It has only 497 kilometres of roads. Besides, Lohit and Digaru rivers add to the problem of communications in the district, as mentioned before. But when it comes to literacy, Lohit scores with 17 39 per cent, Arunachal's highest. And it is this lead which gives Khan all his problems. And it is also indicative of the shape of things to come.

Lohit's high literacy rate is mainly on account of just one advanced community in the district, the Khamptis. Their high rate of awareness also means a higher rate of expectations. Since Lohit has a larger proportion of level ground, land developed under permanent cultivation (as against shifting "jhoom" cultivation) is the highest here amongst all the districts., as much as 820 hectares in Arunachal's total of 2,637 hectares. The Khamptis, having once experienced what tractors and minor irrigation works can produce from their fertile fields,

The Norottam Cooperative Societies have been started at Deomali, Tirap District by the Nocte Chieftains of Namsang and Borduria, surrendering their traditional property rights over forests. The share amount is contributed by 4,814 Nocte families. Each share of Rs. 250/- is loaned by the Government and will be recovered from the dividends accruing to the shareholders. About Rs. 1 crore have accumulated so far and from this People Fund has been financed two excellent Rama Krishna Mission schools run in the District. The People's Fund is administered by a Trust The Norottam Co-operative, started in 1872, has an oil-crushing, saw-milling and plywood factory.

are now clamouring for more. It is the story all over again of a development strategy working out well, the people adding to its momentum in the subsequent stages, and government agencies finding that, far from being simplistic, the problem now is to retain roused expectations in constructive channels. At Namsai, the Khampti farmers had gathered in strength on the rumour that someone from the Planning Commission was to visit their place, and we found ourselves in the midst of garlanding maidens, speechmaking leaders, a fete. Their demand: "Give us more tractors to clear this area, only machines can do it because we are far too few; give us more water and we will feed the whole of Arunachal from these very fields". Khan acknowledged that the last claim may well turn out to be true, but his dilemma was that having brought a people to the take-off stage, he had now to tell them sometimes to apply the brakes. Money for one more tractor may not be forthcoming. And the demand of the Khamptis finds an echo in the Territory's annual plan document, too:

"In the past, lower allocations for Arunachal Pradesh were dictated through the difficulties of usefully spending more money or developing resources more rapidly due to the basic lack of infrastructure or other reasons.... Now, a full zone under a Chief Engineer has been created and the strengthening of the CPWD sanctioned. Similarly, some much needed strengthening of the other departments now seem realistically possible....Out of the Territory's total Fifth Plan allocation of Rs 633 million, Rs 241 million have already been spent, leaving only Rs 392 million for the remaining two years.. Apart from this, there are extremely cogent and urgent reasons why the Fifth Five Year Plan should receive drastically higher outlay than has been provided hitherto..... From 15 August, 1975, a full-fledged legislature has been introduced in the Union Territory. The aspirations of the people have been roused.... and it is essential to match these with outlays... The 20-Point Programme.... ", and so forth.

Clearly, just one rung of the development ladder leads things to the national vortex of expectations and contending priorities. So much has to be done. The people are willing and eager. But our wherewithal is limited and it has to be apportioned evenly.

While making out as strong a case as possible for getting a larger share of the national cake, the people of Arunachal have proved their mettle in giving, too. The chieftains of Namsang and Borduria in Tirap have surrendered their ancient traditional rights over forests and have created a People's Fund which now approaches Rs 30 million, a largesse for the common weal unheard of in any other part of India. Out of this fund have come more than Rs 2.5 million for two Ramakrishna Mission public schools and Rs 1 million as loan for 4,000 villagers at

Rs 250 a family to acquire shares in a cooperative for wood-based industries. S.C. Sharma, the Deputy Commissioner of Siang, said that it was possible in his district to construct one kilometre of mountain road 16 ft wide for as little as Rs 10,000 when the actual cost could be Rs 100,000, because the people give their labour free. Government agencies come in at such road-building projects only with technical advice and supervision, hard rock cutting and bridge-building beyond the 30-ft span. Shramdam are part of other building projects, too. The *Dolung Kebangs* (village councils) of the Adis decide that everyone should contribute his labour When the message goes out, even senior government officials serving in far-off places have to take leave, go to their villages and help out with the job at hand. No one is exempt. In this ancient system of *Kebangs* wherein elements of a criminal procedure code are well-established and fines up to Rs 100,000 could be imposed on a sentenced individual, that individual is held in adherence by his family, his clan, his tribe. He just has to obey.

We saw evidence of this spirit of giving on the highways, too: mystifying bamboo bar gates with dwellings attached to them every few kilometres. On enquiry it turned out that the gates were meant for protecting the crops from free-roaming cattle A field on level ground is a precious thing in Siang and among some communities. entire villages gather for communal rituals and dancing when a fence is put up around a field. When a road passes through a cultivated area the practice is to put up gates where the fields begin and end. Earlier, when the gates were unguarded, every vehicle was expected to stop for the opening and the closing of it. When a truck or bus driver neglected to close a gate behind him, the villagers would chase him to the town, and there would be fisticuffs. When this ritual began to get on everyone's nerves, the authorities told the *Kebangs* that roads cannot serve fast movement if vehicles had to stop eternally for opening and closing of gates And a human life could well depend on fast travel. That convinced them and now every gate is guarded by a watchman whose duty it is to keep it open for traffic and closed for cattle. The *Kebang* builds his dwelling and pays his salary.

A dormitory in the Rama Krishna Mission Boys School, Deomali, started in 1972. Swami Gambhirananda is the executive head of this school with 284 students, all of whom are tribals. All the boys are boarders and their accommodation and food are free. The Ramakrishna Mission Schools at Deomali and Along can be reckoned among the best institutions of their kind in this country. *Below* : The prayer time. All religions are sacred.

Willingness to give comes naturally to the highlander, who cannot survive in his hostile environment without sharing and cooperating When a man's home needs heavy repairs which he cannot accomplish by his own labours, he can count on the entire village pitching in. When a man dies, often it becomes the duty of his brother to take his sister-in-law for a wife and care far her and for his brother's children. If the widow prefers to remain alone, the entire village will help her with jungle-clearing and tilling.

A chief may be wealthy with a number of Mithuns to show for it, but when they are sacrificed in a ritual, it is the entire community

Right : In a well-to-do Khampti h
Members of the family offer wo
to Lord Buddha at their home sh

Below · Great change is taking place i
attitudes and fashion of the girls of
new generation who have received edu
ion. The practice of bride price still
among the people which is given in
form of Mithuns depending on the b
room's economic status. The educ
girls of today do not hesitate to m
plainsmen.

that partakes of it. And he r
have a dozen large beer pots c
tantly brewing in his house so
he can entertain any number
guests any time.

To our constant embarrassm
we had to accept without
chance of returning the hosp
lity of these largehearted peopl
every village we had visited.
companying officials, and a do
friendly onlookers would troop
and there would be boiled egg
fried chicken for everyone, and
beer, *apong, arrah, o, jau* or *kham*
different communities call it-
wash it down with. Officials v
are required to travel extensively
their areas acquire and develop
formidable thirst for the villag
brew and they assiduously prom
the myth with all newcomers tha
is sacrilege to refuse the liquid h
pitality. But the Arunachali does
mind; he will fill your decora
bamboo beer barrel as long as y
are not prostrate. Arunachal's peo
eat only simple boiled food with
little chilli on occasion, but wh
they formally invite plains-people
eat with them, they hire a Nep
cook to prepare the greasy a
heavily spiced meals which th
know the guests prefer!

At one place we merely admir
the shell-like gourds they use f
ladles, and the housewife press
them on us, one for each. At anoth
place Kapoor wanted the lady of t
house to festoon herself with all h
bead and silver finery, and she too
out these expensive and present
unobtainable ceramic and gla
beads once brought from ancie
Tibet from a nearby peg. The ide
that jewellery has to be hidden awa
is yet to come into these home
During daytime villages are deser
ed with everyone busy in the fiel
or forest, yet dwellings do not nee
doors to keep out intruders becaus
property is protected by a univers
sense of propriety.

If you wish to cultivate your neigh
bour's fallow fields for yourself fo
a season, ask him, it is yours. if yo
want to fish in a stretch of river be
longing to him, ask him again, h

will let you. But if a price is mentioned don't try to bargain; a man's utterance is sacrosanct. A word, be it a price, is not given lightly. One shocking incident we heard about concerned an Arunachali maiden who had taken a *dao* and cut off her thumb to prove herself truthful in a *Kebang* assembled to determine whether a certain young swain from the plains had actually promised to marry her.

The people of Arunachal Pradesh do not object to the plainsman or anyone else from wooing their daughters and marrying them. Indeed, a female Monpa face is a piece of translucent porcelain and no male heart can resist its delicate nuances of seduction and doe-eyed innocence washed in brown and pink. But what is of concern to Arunachal society is that their girls can easily be led up the garden path and abandoned. Education and the descent of 'modernity' are also throwing spanners into the traditional works of Arunachal society, (discussed elsewhere in the section on education). At the time when public schools came up for tribal boys someone objected that the boys will not any more marry their own girls. To which Lieutenant-Governor Raja replied with a large public school exclusively for girls. But in sturdy Khampti society, a woman's worth is still measured in terms of her ability to do all the household work, including the weaving of all the family's clothing But what about a man's worth, I asked Chowkhamoon Gohain Namsoom, their doyen and former Member of parliament. A man, he said, has to prove his worth before asking for a wife in all the manly arts farming, trading, industry, house building and learning. And war.

That ancient horsetrading, the bride-price, operates in many communities. The price is five or six mithuns, each costing Rs 1,500. Mithun is valued because it is rare and its meat is eaten only on festive or ritual occasions. Homes display rows of mithun horn salvaged from sacrificial occasions. A woman is valued because in spite of being fragile and comely (we did not come across any other variety), she is capable of hard toil. Woman far outnumber men in many communities, a fact, as we were assured, not found reflected in aggregate census figures because of the presence of working male population from outside. In any case, polygamy is not uncommon and chief may have half-a-dozen or more wives with separate compartments for each wife in house which may run as long as 250 ft in its length if it is a large joint family consisting of man, wives and married sons. But trading a daughter for half-a-dozen mithuns is not such a profitable proposition as it would seem in this equity-loving part of our country. Th bride's father has to give her heav loads of beads. The mithun he ge in compensation merely roams tł forest and does not do any usefı work or give milk. Eventually it eaten by the whole communit Also, while it is living, it has to l given salt to lick from the owner hand every day to keep it tame.

The Yojana Party experienced the unforgettable warmth and hospitality of the village folk when they visited BELO village. Cheery Apong flowed freely and several chickens were butchered to serve the guests.

Above : **The leader of the Yojana Party was honoured with the presentation of the traditional embroidered coat.**

Below : **The local leader, also reputed to be an orator, made a long speech representing the local people's problems and praised the authorities for the achievements made.**

But the simple fact of the matter is that despite all differences man's predicament in Arunachal is not a matter of fundamental differences at all. Their share of social burdens or superstition is not in any way more, or less, debilitating than that of a don in a university. If dons blame them for not climbing down to easier ground, it is as well to remember that the English word *idiot* is derived from a fifth century BC Greek word which originally meant anyone who refused to climb down from his ivory tower

The skill needed to drive a car through a busy thoroughfare is in no way superior to the skill, and courage, needed to negotiate a jungle path on a dark night If a physician can look at an electro-cardiogram and give his patient a prescription in order to earn his bread so can a tribal wanderer in the forest size up the seedlings growing at the foot of a tree, estimate the size of hornbill chicks high above him in the nest, and shin up the tree to earn his dinner. At Rani village near Pasighat we watched an old man working on some strips of bamboo with a hooked penknife. His fingers, teeth, toes and body came into a facile orchestration of movements as he twisted and knotted the strips of pliable bamboo. Finally, his object emerged, a cunning little bird trap shaped like a bow. The old man's concentration was no different from that of a TV mechanic operating in a city drawing room.

The total complexity of any two given languages, experts now agree, are about the same and there is no need for a native speaker, of say, Malayalam, to feel superior to the Sherdukpen. The so-called superior vocabulary of any modern language consists entirely of borrowed feathers

Life is long
And our song is short
Nevertheless,
With our short song
May we wish you long life?
We wish you welcome
Into our midst
May you come again.
You come from afar
With our hearts and our song
We welcome you
You have travelled far
With travail
May our song relieve you
Of all the tedium.
Once we,
The Nepak, the Nemae and the Nishi,
Were one
But now we live in different parts
But we are the same; one
Nepak and Nemae practise writing;
We the Nishi do not write
But we are one,
Come into our midst,
We are all one

Indeed, man the thinker and the worker is the same everywhere, with the same brain and pair of hands, appetites and proclivities. But how did he get differentiated into tribal and citizen? Into nomad, farmer, industrialist and businessman? Arnold J. Toynbee in his *A Study of History* examines the various factors such as the stimulus of Hard Countries, the stimulus of New Ground, the stimulus of Blows, the stimulus of Pressures and the stimulus of Penalizations, all of which may lead to the growth of civilizations and arrives at this conclusion:

> The most stimulating challenge is one of mean degree between an excess of severity and a deficiency of it, since a deficient challenge may fail to stimulate the challenged party at all while an excessive challenge may break his spirit. But what about the challenge with which he is just capable of coping? On a short view this is the most stimulating challenge imaginable; and in the concrete instances of the Polynesians and the Eskimos and the Nomads and the Osmanlis and the Spartans, we have observed that such challenges are apt to evoke *tours de force*. We have also observed, however, that in the next chapter of the story

A Ponung, welcome song, of the Adis, sung to welcome the *Yojana* party at the Belo village of the Gallong people near Daporijo in Subansiri district. The song was translated for the author's benefit by Shri Tayom Bage, 18, studying in Class X in the Daporijo Government Higher Secondary School.

these *tours de force* exact, from those who have performed them, a fatal penalty in the shape of an arrest in their development. Therefore, on the longer view, we must pronounce that the evocation of the greatest immediate response is not the ultimate test of whether any given challenge is the optimum from the standpoint of evoking the greatest response on the whole and in the end. The real optimum challenge is one which not only stimulates the challenged party to achieve a single successful response but also stimulates him to acquire momentum that carries him a step further: from achievement to fresh struggle, from the solution of one problem

This photograph of a Mishmi home was taken after night-fall. The girl climbing the ladder had just returned with the bamboo water containers from the nearby jungle. Women go alone to the jungle streams to collect water even during night time with a bare hurricane lantern in their hand.

to the presentation of another, from Yin to Yang again. The single finite movement from a disturbance to a restoration of equilibrium is not enough if genesis is to be followed by growth. And, to convert the movement into a repetitive, recurrent rhythm, there must be an *elan vital* (to use Bergson's term) which carries the challenged party through equilibrium into an overbalance which exposes him to a fresh challenge and thereby inspires him to make a fresh response in the form of a further equilibrium ending in a further overbalance, and so on in a progression which is potentially infinite. *

Can we artificially or with the aid of outside agents create this *elan*?

A review of what has already taken place in the past two decades indicates that compared with its totally unadministered state with no infrastructure whatsoever a quarter of a century ago, Arunachal today is the one place on the earth where the maximum possible change has taken place in such a short span of time. Its people are leaping the centuries into modernity, and the hills which once defied five imperial dynasties are now echoing with the drone of hydel plants planted in their secret crannies by engineers serving a republic.

Believe it or not, full one half of India's total power otential is in Arunachal Pradesh, according to an estimate made by the former Central Water and Power Commission some ten years ago. The first hesitant step to tap this immense wealth was taken in 1972 in Kalektang in Kameng with a 10 kW station. The cost of production would be 10 paise per unit, compared with 50 to 60 paise per unit in nearby Assam. By March 1977 Arunachal hopes to plant its first megawatt milestone at Ziro. Arunachal can use only 0.5 megawatts, and the rest would be sold to Assam at 20 paise a unit, fetching the Territory an annual revenue of Rs 1.3 million.

When the subsequent megawatt milestones are planted, Arunachal will become India's richest State.

There are insurmountable engineering problems in making this possible. The bulk of the potential exists in Kameng and Subansiri. The rivers are small and much of the potential can be tapped by simple penstocks without recourse to expensive or dangerous damming in the unstable Himalayan terrain. The main problem would be one of creating extensive grids, but that too is not beyond our present ken.

Facing Page :
Sowing on a terraced field. Terrace cultivation is finding acceptance increasingly with the tribal farmers.

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*Arnold J. Toynbee : *A Study of History:* Volume III The Growths of Civilizations. Oxford University Press, New York and London.

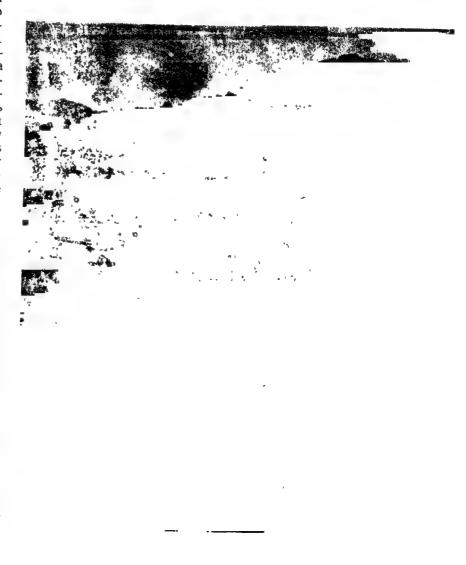
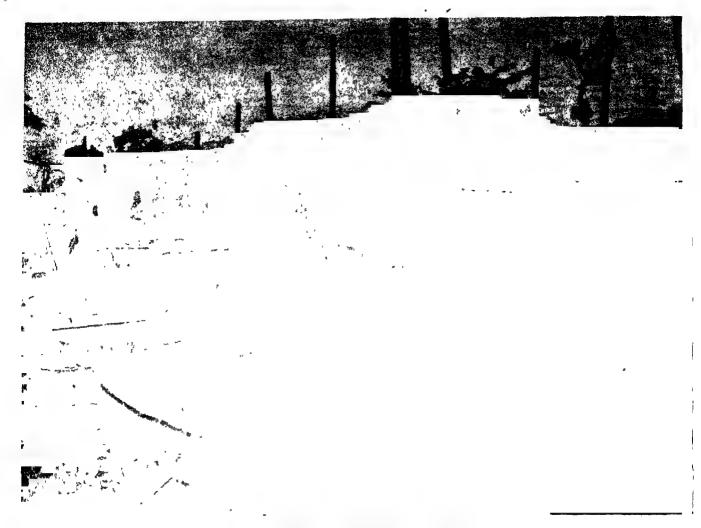
Apart from hydel power waiting to e tapped, Arunachal has forests nd minerals too, strengthening its iaterial base, (see separate articles n these two topics). But when all said and done, to the people them-·lves right now, the prospect is one f continuing struggle; since food ›ntinues to be their fundamental eed in life, efforts to increase its ipply should be development's rst aim, if they are to be released om the cruel clutches of the hills nd the task is not easy.

Land, Food And Livestock

The great transition from shift-ig cultivation to settled cultiva-›n has begun in Arunachal only a small way. And until this ›vement has attained some mo-›ntum, very little can be said about : people themselves undertaking :ir own development In scienti- terrace-building, the humous-h topsoil is scrapped first and kept de. The hillside is then divided o convenient strips and the earth m the higher portion of each strip lug and brought to the lower por-n, thereby forming a level ledge. e scraped topsoil is then care-ly spread on top At the Senua l conservation training *cum* de-nstration centre in Tirap, orga-ed effort to disseminate this hnology was begun in earnest y in 1974. This farm has now ıe 150 acres under wheat Batches village-level workers go there for iods of five months at a time to n the technicalities They are ı expected to return to their com-ıities and begin the work at ›sroot levels Admittedly, it is ıg to be a slow process. In areas re the gradients permit it and re population pressures give an ed incentive, the different com-ıities do take to terrace-making. ı Lohit where substantial level ınd is available, attempts are made to settle the Mishmis in pact villages. One important 'tional reason for settling farm-communities close to the dis-'s capital at Tezu is that any lus grain that they might pro-: will to that extent reduce Tezu's ›ndence on outside supplies, ı communications are so diffi- there for the major part of the . In fact, the authorities per-e the Mishmis to cultivate ıt as a second crop for the

'acing page : **Showing millet on a erraced field.**

Above **. Wheat fields in Lathao village, Namsai Sub-division of Lohit District where tractors are popular with the farmers.**

Below **· Farm girls harvesting paddy in Along. Only the ears are cut and the hay is ploughed into the fields.**

A house under construction in Tafrogam

winter, and sell their entire produce. (The Mishmis do not eat wheat).

The regrouping of scattered families into compact villages makes it easier for the administration to reach them with health care, education, water and state aid. At Tafrogam, four kilometres outside Tezu, some 1,000 acres of land are already cleared and given to 100 Mishmi families, formerly scattered in half a dozen settlements. They are also given Rs 200 as subsidy for seed, implements, etc, but not for house-construction. Initially, they were persuaded to put small shelters in the fields themselves, but now that they have seen the benefits of community living, they are putting up larger dwellings. The settlement had involved the clearing of thick jungles in which trees, many of them giants, were found at the rate of 1,000 to the acre. Tafrogam is already in its third year now. In the next stage, to be completed in a couple of years, there would be channelled water and more tractors for preparing the ground. Double cropping and animal husbandry would also be taken up. Already Tafrogam has a lower primary school, piped water and a few government tractors to be had on hire. A senior village level worker, Shri G.C. Sonowal, and an agricultural inspector, Shri S.R. Patel, are the two crucial agents of change on whose labours and sincerity the whole project depends for its viability and success.

Based on the experience at Tafrogam, another 750 acres are now additionally developed at Loiliang close by for the benefit of additional 75 families. Loiliang also has a middle school and a dairy farm. The two settlements are to be connected by a road soon.

But it has to be recognised that scope for such settlements are very rare in Arunachal. The other important matter to be borne in mind is that the land will not yield a surplus if primary grain alone is to be raised from it. True, the high cost (and occasionally near-impossibility), of transporting grain from the plains to the hills makes it imperative that the hillsman raise his own grain; but his dependence on land has to be diversified to include low-volume-high-value crops as well as livestock. But here again, the vicious circle can be broken only by overcoming the communications hurdle. Of what use can cash-crops be if they cannot be exchanged for cash? Oranges, pineapple, banana, apple, lemon grass, ginger, tea and sugarcane—the different regions of Arunachal Pradesh can and do grow them in varying degrees of abundance. But the administration is now forced to limit their large scale extension to only a few accessible areas where some kind of rudimentary marketing facility exists. With the help of Himachal Pradesh, whose Chief Minister Dr. Parmar had recently visited the Territory, Arunachal is now guardedly committing herself to taking firmer steps to extending apple cultivation, pinning her hopes on more roads. Similarly with tea and silkworm rearing.

Facing page : **In Lohit where some level ground is available the Mishmis are being settled in compact villages.**

In the matter of livestock, things are a little more difficult, despite the efforts under way now. The task of stabilising profitable breeds to suit the terrain and clime is yet to be undertaken and it may be years before it is successfully accomplished. On the face of it, it is the goat which can easily and most economically convert the abundant vegetation into valuable end products useful to man. But agricultural experts and economists are yet to overcome their dread of this hardy but destructive creature and everyone in Arunachal trots out the case of a east European country where the goat is now banned by a state edict. The cold fact of the matter is that an ecology can be transformed or destroyed by *any* creature, if given the chance. There are two goat farms in the Kameng district but elsewhere the animals are treated with indifference. The problem generally with livestock rearing is that superior animals need superior feed and care; in the absence of it, artificial insemination, etc. can only degenerate into a mongerel breeding programme. Thus, the introduction of sophisticated animal management techniques may have to await the arrival of sophistication at other subsidiary levels.

Raja and Road Building

And whether we call it sophistication or development or whatever, it is roads alone that can bring it to the hills. Whether it is meat or fruit or spice, it is not so much their production that is the problem but their transportation. The economic symbiosis of disparate geographic units becomes complete when communication brings about easier intercourse. Inscribed on a marble column in Khonsa, we saw a poetic expression of this basic economic fact:

We cut these roads
That from the meeting of the ways
New vistas might lie
open to our progeny.
Remember us. Think well.
We do not ask your praise,
Only the faith to pass
The crossroads of your destiny.

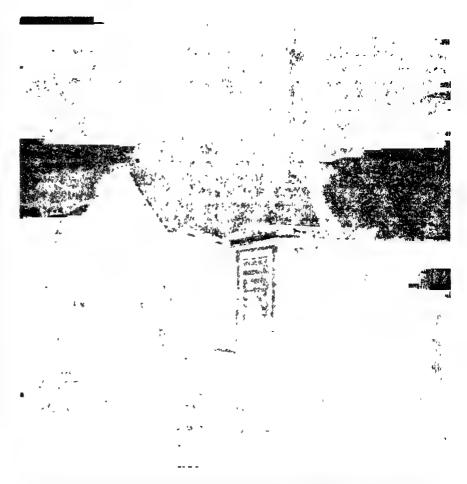
Thus inscribed K.A. Ayyaswamy Raja, IFAS, Political Officer, Tirap Frontier Division, on that column in Khonsa, when under his leadership Noctes, Wanchos, Tangsas and Singhpos of the region had completed 180 miles of mountain roads on 28 February 1959. Shri Raja today is the Lieutenant-Governor of the whole Territory and instead of just four tribes, he has the entire population of the region harnessed to the task of attacking the innermost core of their isolation and backwardness with more and more of roads.

At his temporary head quarters in Itanagar, Shri Raja refused to take the bait we had offered him to talk about his own life's work, dismissing the prodigious feats of opening up the land, feats which had earned him the name "Raja the Roadbuilder", as something ordained by a Higher Being in his own inscrutable scheme of things. But his subordinates elsewhere were less reticent. They told us how this wealthy landowner from Rajapalayam, once the Commandant of the 1st Parachute Battalion of the Kumaon Regiment, and later o[f] paramilitary resistance forces of th[e] frontiers spends the *Brahma Muhurtam*, the sacred hours of the nigh[t] after the midnight hour, awake an[d] alone in prayer, seeking the Ligh[t] that would show him the way; how he knows every turn in ever[y] mountain road in Arunachal because he himself had built man[y] of them; how he calls everyone who was anyone in Arunachal by the[ir] first names because he had know[n] them all as kids; how providenc[e] itself seemed to intervene in hi[s] behalf when everyone assumed h[e] had at last overreached himsel[f] with some bold decision or other

Amount the crucial agents of change is the introduction of new crops like orange, pineapple, spota, lemon etc. Here is a flourishing orange garden owned by a tribal.

how he had planned and built Khonsa, operating from bamboo shacks and was promoted and sent away when the time came for its occupation; how he had built the temporary capital and its approach road in just one year's time and then moved on to build the permanent capital. Shri Raja has spent the major part of his working life in the hills and the major part of his energies were spent in breaching and impregnating them. For a while he was Development Commissioner of Ladakh, and there, true to type, he went to work on the hills once again and opened the first road between Kargil and Leh.

Imagine a traveller either in Orissa or Kerala every time going to the adjacent State in order to journey from one District HQ to another District HQ. Unimaginable? But that is what one has to do now in Arunachal in order to journey from one District HQ to another! There are no lateral roads in the Territory connecting the different district towns except the one between Ziro in Subansiri and Along in Siang. Everywhere else one has to journey up north from the plains of Assam, come down south, and climb up once again in order to enter second district. Thus, in our tour we had to pass through all the important towns in northern Assam such as Tezpur, Dibrugarh, Tinsukia, Nahrkatiya, etc. Public transport exists only on one or two routes. Officials on tours without their own jeeps have to beg lifts from anyone going their way. At Along, we met a labour inspector waiting for a cabin seat in a truck and he was waiting for it for the past three days. At a wayside shop a few kilometeres outside Along we got 20 of the world's sweetest and fattest bananas for a rupee because the woman who sold them to us had no other way of disposing them of. We could see here that a road is truly man's salvation in the hills.

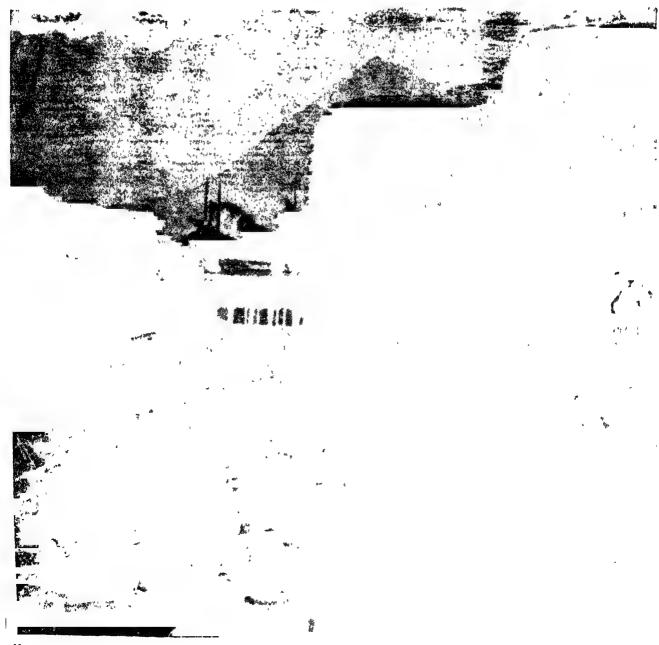
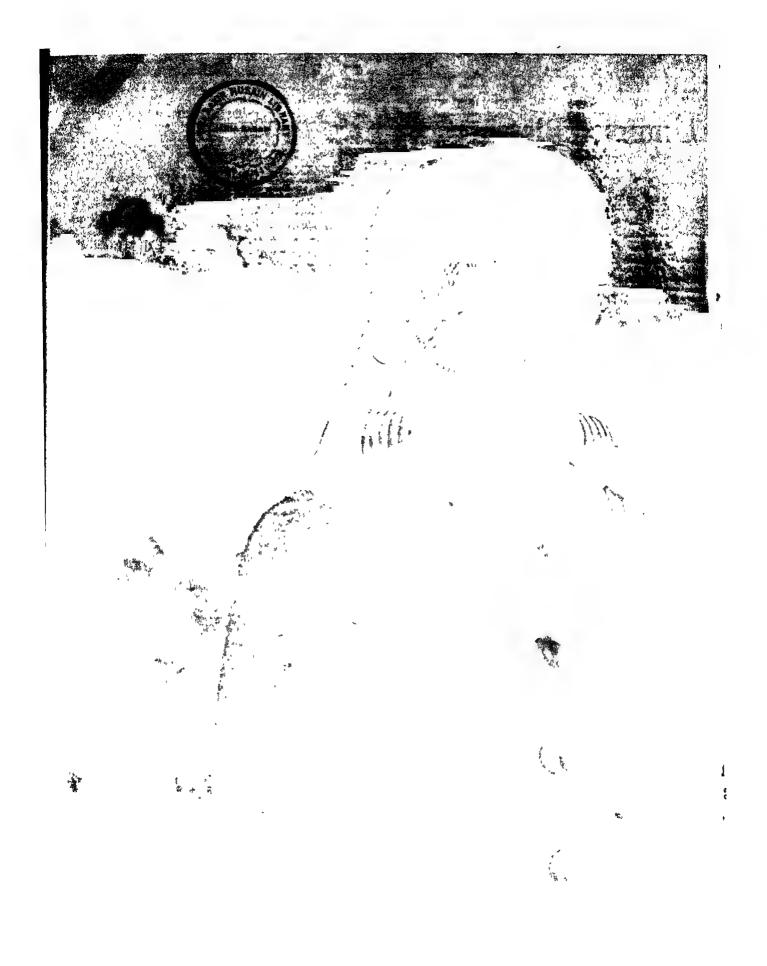
But, even when given this paramount need. Shri Raja's all-out attack on isolation with road consruction is not without its detractors. Many newly made roads, his critics point out, have fallen into decay. His engineers also agree that they could be kept in better shape, if funds were forth coming. But the fact of the matter is that wheher one develops the people to such an extent that they go and build their own roads or whether one develops the roads so that the wherewithal of further development comes to them, one has to break the vicious circle somewhere

All new development in Arunachal like introduction of horticulture, fruit culture, sheep and cattle farming hinges on roads and communication. The tablet above commemorates the voluntary contribution of tribal labour for building new roads.

A disturbing corollary that emerges from this observation is that there is the possibility of erasure and obliteration when the development of virgin ground is akin to writing on a clean slate Given the legacy of backwardness in agriculture, health, education and everything else, one is free to start anywhere, and compelled to start everywhere. But the rational method would be to try and identify a single strand that runs through it all, give it the supreme priority, and go to work simultaneously on other sectors as well.

But when backwardness is so

general, the distinction between priorities and generalities tends to get diffused. To go back to our analogy of the slate, the trick is to etch the basic design in a deep grove, so that subsequent hands do not smudge or obliterate it. But this cannot always be ensured because the stylus to accomplish it, financial resource, is so uncertain. All social infra-structure building requires not only heavy initial capital expenditure, but subsequent maintenance expenditure too at the rate of about 30 per cent of the initial cost. Thus, any progressive expansion would immediately lead to a much larger aggregate cost. Unless Arunachal too takes into account this basic lesson India has learned from its overall development experience, her pot of grapejuice too (to change the metaphor) may turn into vinegar instead of wine. But some yeast may be forthcoming from internal resources such as power generation, as we had indicated earlier. As it is, the annual descent of frost in the shape of cuts in funds is going to wither many a bloom before fruiting.

Perhaps the other disquieting aspect of development in Arunachal lies in the education system. Here too there is every possble complusion from every possible quarter to expand the facilities, the way it has happened in the plains, and the facilities wife expanding. But there is no immediate hope of turning all

Above : A Mithun, the most prized personal possession of many Arunachal communities. *Below:* A view of a typical Nocte village built on the rocky heights of a hill built about 200 metres above the road level. The problem of water and sanitation is acute in such villages. facing page: A Mishani women with child

Education Not An Unmixed Blessing

educated manpower into productive manpower. This is the crux of the problem. Indeed, some disenchanted observers of the educational scene in Arunachal feel that this particular leaping of the centuries may well land Arunachal society in some sort of unrest. The problem is the familiar one of improper human engineering and inept pairing of arithmetically expanding material resources with geometrically expanding human aspirations. Newly introduced formal education makes the youth unfit for traditional occupations and lifestyles. On discovering that his certificate is not such a promising meal ticket after all, the youth turns into that familiar avenue of social frustration we are so fond of euphemistically calling politics' Arunachal can escape the general fate only if its human enneering is perfect. To look at the problem squarely and factually in the face;

Tribal students have taken earnestly to the study of science and in some schools laboratory equipment is not adequate.

Except for the Monpas of Kameng and the Khamtis of Lohit, both of whom are Buddhists with traditions of learning the scriptures in archaic languages from monks, there are no traditions of formal education among the tribal people of Arunachal In the past decade and a half, schools have multiplied so fast that learning now is within the reach of almost all. If a school is not within walking distance, the pupil can claim boarding facility wherever they exist.

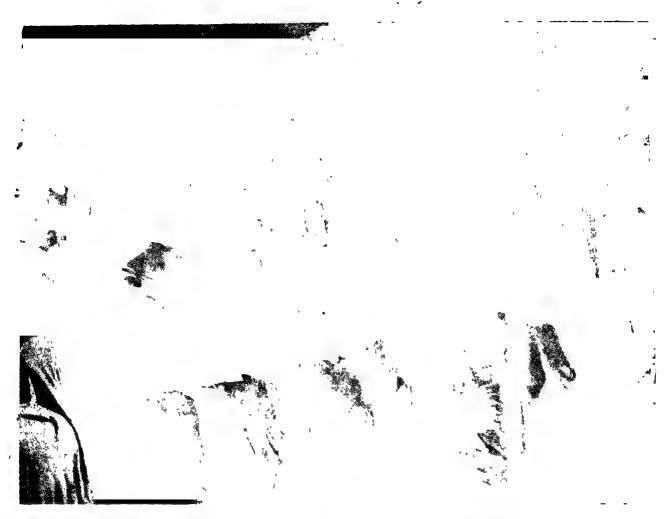
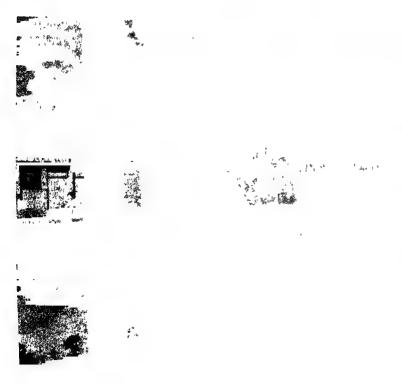
It is quite conceivable that the education a boy or girl receives can give him or her marketable economic skills, but these markets for skills are yet to arrive in Arunachal For the few who go up the competitive ladder the only economic opportunity available at present is a government job, including a soldier's job. Although migration to the plains is not yet happening now, there is already the phenomenon of stipend earners loitering in the towns during vacations instead of going home. The educated mind's dissatisfaction with village home conditions is at its worst in tribal societies. Making the educated Arunachal return productively to his village is not going to be easy. Economic opportunities created by development of horticulture and horticulture-based industries, animal husbandry, poultry farming, and the development of local crafts based on local resources may act as draw magnets, but their development again is dependent on a lot of ifs and buts.

What is perhaps equally important is to introduce the Habitat concept into Arunachal before it is too late, so that villages become livable for the educated and cultivated human being. Arunachal homes made of bamboo, timber and thatch have evolved through the centuries using local materials to

While the compulsion to expand education facilities continues, the philosophy underlying the system is to grapple with the need to match thirst for knowledge with betterment of life. The problem is not merely one of possible employment of the educated, it is a problem of improving the habitat with the help of educated youngmen and women.

Students at work at Pasighat college

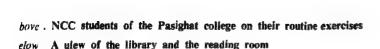
suit the local climatic conditions. But they were never meant for piped water, electricity or even simple furniture. In the evening when half a dozen hearths in a home starts spewing their smoke, a man can keep his head from reeling only if he continuously assumes the sqatting posture. On his feet, his head is in a cloud of smoke. A schoolboy returning from a well-lit, well-ventilated hostel finds his home intolerable. Clean linen, good food, tables and chairs, crockery and cutlery, toilet and bath facilities, all made available free to him in the hostel are not obtainable at home

At the Jawaharlal Nehru College at Pasighat, Arunachal's only college for the time being, the hiatus is sought to be closed by making college education project-oriented. But the fact remains that young people who go on to the college level are only a fraction of school-goers. The aim of the project-method is to make science subjects like physics, chemistry, biology, etc, of practical value to the student by objectifying

The Jawaharlal Nehru College at Pasighat, the only one of its kind in Arunachal, is trying to bridge the gap between education and employment. Ably managed, it seeks to provide facilities for sports, social service and disciplined living.

the principles involved and linking theoretical learning with practical life and productivity.

At Pasighat we met a group of schoolboys who had walked 11 kilometres to see a science exhibition. At our exchanges, it was difficult to determine who was interviewing whom, so tremendous was their curiosity and thirst for knowledge of the outside world. They all wanted to become teachers, doctors, scientists, When denied that chance at the end of their hopeful careers, will they all want to become MLAs and ministers?

The Pasighat College has a mission to perform: To make the hillman and hillwoman fitter for the hills. It is a mission that has got to succeed.

This will call for special efforts to tailor education to the needs of the tribal people. The practical classes in the laboratories have to make up for the deficiency of the lectures and tutorials since it is here that students handle materials and problems that can be of use to them in life. In the

bove . NCC students of the Pasighat college on their routine exercises
elow A ulew of the library and the reading room

ighat College students are taught
t to look down on manual labour.
y dig, they sweep, they prepare
d for plants and flowers, they
ld and preserve the hedges and
y are now being also taught how
grow fish in small ponds and imp-
e their habitat.

Preserving Tribal Dress

I am horrified at the picture of these people being made to give up their old artistic-clothes or even lack of clothes in favour of a dirty pair of shorts or some such thing. I am also greatly disturbed at certain shabby articles of modern civilization replacing the artistic products of these people. I am quite clear that we should prevent cheap mill-cloth going there as far as we can. we are in fact encouraging hand-spun and hand-woven goods all over India. Surely we should use only these in this area for presents and for other purposes. Indeed the rght course woud be to get yarn woven into artistic patterns and encourage this artistic craft there.

I do not agree with the criticism that the preservation of tribal art and tribal dress indicates a desire to keep the tribal people as museum specimens. The danger is that these people will lose their culture and have nothing to replace it. I have no doubt that with the opening out of roads and other communcations, these remote areas will be influenced by the rest of India. What has usually happened is that these artistic primitive people lose their artistry and get nothing to replace it Of course I do not wish them to feel that we are stopping the 'clock of progress, though I have my grave doubts as to whether this clock is one of progress or not. We do not wish to stop them from doing what they like, but we must not encourage them to go the wrong way."

JAWAHARLAL NEHRU

Geology and Mineral Wealth of Arunachal Pradesh

A Challenge to the Explorer

DR. S.N. SEN

Arunachal is perhaps the most challenging part of india Much of this challenge comes from the nature of its terrain. There are three distinct physiographic units of Arunachal Pradesh--the sub-Himalayan, the lower Himalayan and the greater Himalayan. Unlike the western Himalayas, this territory presents many hazards, mainly in communication Besides, historically speaking the region has suffered neglect for centuries and the beginnings of geological exploration are traceable only to the l forties. Now, however, systematic explorati has been taken up and we are far from havi completed this task. Many valuable mine deposits have been traced in this territory a the scope for detailed survey is enormo But modern communication and technolo have already made a deep dent into the isol tion from which Arunachal has suffered f centuries and the future has great promi

THAT SECTOR OF the Eastern Himalaya which formerly formed the Assam Himalayas with different segments, of Aka, Dafla, Miri Abor and Mishmi Hills, subsequently became known as the NEFA Himalaya. It now covers the major part of Arunachal Pradesh which came into being as a separate Union Territory of India on 19 January, 1972. The name Arunachal has been quite appropriately chosen since this is the first Indian soil to greet the rising sun. Of its five districts, four viz., the Kameng, Subansiri, Siang and Lohit districts geographically represent the easterly extension of the Himalaya beyond Bhutan; its fifth district viz., the Tirap district towards the southeast covers the easternmost segment of the Naga-Patkai range abutting the Lohit front

Out of the total area of the territory, covering 81,426 sq. km. the Himalayan part covers about 79,000 sq. km. The territory has a total population of about 4.5 lakhs with a literacy range of about 10 per cent.

Dr. Sen is Deputy Director General, NER, GSI. G.S.I. celebrated the 125th anniversary in 1976.

Lying within the tropical monsoonic belt the Arunachal Himalaya makes a favourable habitat for a variety of flora and fauna,—including a few rare species, the systematic study of which is yet to be organised.

Physiographically, the Arunachal Himalayas constitute three distinct units.

(i) The sub Himalayan belt comprising the frontal hill ranges fringing the northern limit of the Brahmaputra valley of Assam. The hills vary in altitude, rising upto 1700 m (m s l)

(ii) The lower Himalayan ranges, upto 3500 m (m s.l) in altitude

(iii) The greater Himalaya with important peaks like Gorichen (6538 m) and Kongtu (7090 m)

Eastward from Bhutan, the Arunachal Himalaya extends E-W to NE-SW through the districts of Kameng, Subansiri and Siang. Beyond the Siang gorge it takes an oorgraphic swerve to the southeast in the Lohit and the eastern end of the Tirap Dist, forming the so-called Eastern Himalayan syntoxis. In the Lohit Dist. the sub-Himalayan belt is insignificant, the Lower Himalaya, represented by the Dap Bum Range is upto 3800 m (m.s. and the greater Himalaya excee 9500 m (m.s.l.) in altitude.

Geological Work

Unlike the Western Himala the Arunachal Himalaya prese many hazards in mobility and int communication because of thi forests, extremely rugged terr and very limited land routes. these still hinder effective surv works in the territory. In fact, a v area of the territory is remain *terra-incognita* in so far as o knowledge of the geology and mi ral occurrences of the terrain concerned.

The earliest geological inves gation in the territory was in 18 when Wilcox made some observ tions in Lohit district. Subseque geological observations in the oth parts of the territory came throu a few punitive expeditions and

Facing Page.

A mosaic of satellite (Landsat. 1) imag for a part of Arunachal Pradesh (Suban Siang, Lohit and Tirap districts) show major structural trends as interpreted fr the imagery. (Scale; 1" = 16 Miles) (Rece from the Geological Survey of Ind Shillong)

plorations carried out by Rowlatte (1875), Godwin Auten (1875), La Touche (1883), Maclaren (1904), Goggin Brown (1912) and Pascoe (1911). Similar occasional exploratory works continued till the forties and these bring into light the existence of various groups of rocks ranging in age from Pre-Cambrian to recent times described in detail in the foregoing chapter on geology.

From the late forties to the early sixties several traverses in different parts of the territory were made by A. K. Dey and G. C. Chatterjee (1949), T. Banerjee (1950-52), Balasundaram (1956) and Laskar (1953).

Since the inception of the Geological Survey of India's Assam Circle with its Office at Shillong in 1961 and later, of the Arunachal Pradesh Circle office located at Tezpur in 1969, a systematic mapping of the territory has been done. A number of exploratory traverses were carried out in this connection. The Somnath (Goichen) expedition programmed in 1962 had to be abandoned due to Chinese invasion. In recent years, two major expeditions viz the Dapha Bum Expedition 1969-70 and Subansiri Expedition in 1974-75 have been successfully carried out. All these investigations and expeditions have led to the discovery of occurrences of nickel-cobalt bearing sulphide, iron ore, limestone, dolomite marble, graphite, peat and coal in different parts of the territory.

Geology

In Arunachal Pradesh, geological mapping carried out by the Geological Survey of India in different districts covers a total area of about 7500 sq km The geological information gathered so far has led to the deciphering of various geological aspects—structural, tectonic and geomorphic in broad patterns and has helped to some extent in establishing the mineral potentialities of the territory

The general geological set up of the territory begins with the crystalline rocks of the Higher Himalayas. This group of rocks is the oldest, belonging to the Pre-Cambrian age (3600 million years old) occupying the northern part of the territories covered by the Kameng and Siang districts The rock group, stratigraphically referred as the Sela Group, consists of metamorphites, mainly the high grade schists, migmatites, gneisses and granites.

The next younger group of rocks in the stratigraphic sequence is the Bomdila Group comprising mainly chlorite quartz schists, sericite quartzites, mica schists and amphibolites. These rocks range in age between 600 to 3000 million years. The schists occasionally enclose bands of marble as seen in parts of the Kameng district, and graphites as seen in parts of Subansiri district. This group is represented in the Lohit district by gneisses schists and graphitic schists

Rock similar to the Bomdila Group in Arunachal are also noticed in Bhutan and Sikkim.

The next younger group has been classified as the Bishom Group ranging in age from 600 to 300 million years. This group consists of three different lithological units named as the Tenga, Miri and Bichom Formations The Tenga Formation includes a suite of phyllites, quartizites and schists with occasional bands of dolomitic and carbonaceous slates in Kameng, Siang and Subansiri districts. In the Lohit district this rock unit is represented by limestone, marble, quartzites and serpentinites. The Miri Formation consists of variegated slates with calcareous beds and quartzites associated with volcanics (Abor volcanics-basalts and andesites) These rocks are well exposed in the Subansiri and Siang districts and in the Dihang Valley of the Lohit district. In Lohit district the diorites and granodiorites form a part of this formation. The Bichom Formation consists of marine shales, calcareous shales, boulder slates and quartzites, well exposed in the Kameng, Subansiri and Siang districts. Rock types equivalent to Bichom Formation are not found in the Lohit district.

The next younger rock unit overlying the Bichom Group, is the Gondwana Group (300-150 million years) consisting of black shales with calcareous and cherty nodule and bands of slaty shales including invertebrate fossils and quartzites, sandstone, black sandy shales and silts more or less carbonaceous with occasional thin, highly crushed coal seams Plant fossils typical to the Gondwana rocks elsewhere in India are also found in these rocks. The Gondwanas extend as a narrow belt of internally folded rocks along the southern front of the Kameng, Subansiri and Siang districts. They are not found in the Lohit district.

Basic traps associated with quartzites are seen overlying the Bichom Group in the Siang district. These rocks are presumably of Mesozoic age (225 million years) and considered equivalent to the Sylhet Traps of Meghalaya.

The next younger rock suite comprise the Tertiary Group (70 to 10 million years) covering the northern foot hills of the Kameng, Subansiri and Siang districts and the Western foot hills of Lohit district. The Tertiary Group covers the entire Tirap district leaving a small area covered by the metamorphic rocks along its eastern margin

The Tertiaries comprise mainly hard gray sandstone, silty clay, coarse pebbly sandstones, plays, siltstones and boulder beds with fragmentary plant remains and stringers of lignite This rock suite is considered equivalent to the Lower Middle and Upper Siwaliks of the main Himalayan belt and vary in thickness up to 4000 m. In the Lohit district a major part of the Tertiary rocks is covered by a thick pile of recent sub recent alluvia

In the Tirap district, the Tertiaries are the easterly extention of the rock units extending along the Naga-Patkai Hills The Lowermost unit is called the Disang Group. The Disangs consist of dark grey to black, slaty, sandy to cherty shales and fine flaggy sandstones. This Group is overlain with the Barail Group consisting of sandstone shales and clays with workable coal seams. Barail group is overlain with the Tipam Group consisting of greenish to mottled sandstones and mottled clays The Tipams are overlain with the Dupi Tila (Namsang) Group consisting of coarse sandstone, pebbly sandstones and clays with semi carbonised plant remains The Dupi Tilas are overlain with the Dihing Group consisting of boulder beds, loose sand and clays

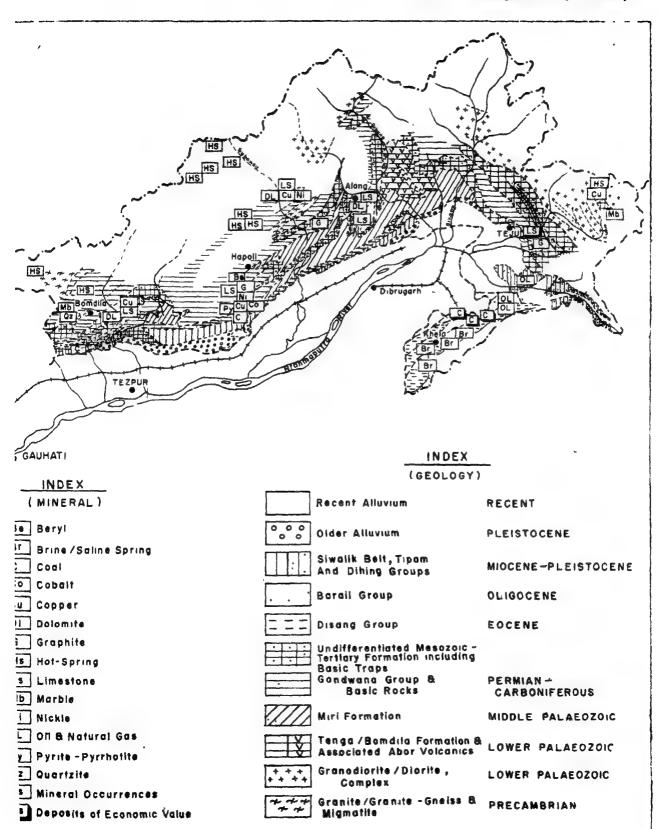
The Barail group is the source rock for oil and natural gas found in Mana Bum, Miao and Kharsang areas of the Tirap district. In the Disang Group occurs several saline water springs in the Barduria area of the Tirap district

Along the foot-hills along the southern and western boundary are scattered patches of older Alluvium consisting of thick pebble/gravel beds, loose sand and clays covered partly by the Newer Alluvium consisting of sand, clay, silt and shingle beds.

Exploration

Arunachal, in fact, remained more or less a 'terra incognita' so far as mineral wealth and its development is concerned because of challenging problems offered by the highly rugged nature of the terrain combined with large expanse of thick

Map Showing the Geological Formation and Mineral Resources of Arunachal Pradesh

(Courtesy : Geological Survey of India)

forests and very limited land routes. Such problems continued to affect the mobility and intercommunication facilities, so important for speedy and effective field exploration aimed at finding and assessing mineral deposits.

Consequent, however, to the intensification of the activities of the Geological Survey of India by establishing the Arunachal Pradesh Circle office in 1969 and with the increasing developmental actvities during the last few decades towards improvement of road communications in the State, a number of occurrences of coal, peat iron ore, polymetallic sulphide ores, graphite, clay, limestone, dolomite and building stone have come to light. Besides, occurrences of radio activity and oil in some parts of Arunachal have also been noticed in recent years. The salient features of different mineral deposits are presented below:

Coal : Coal (as well as oil and gas) have been known to occur in the plains and in the foothills of Patkai range in Tirap district. Occurrence is found in Tertiary group of rocks which date back to 40 million years. The deposits are confined to Namchik-Namphuk and Miao Bum Coalfields lying at a distance of 9 km and 40 km respectively from Jagun village which is about 11 km away from Likhapani Railway Station on the N.F. Railway.

In fact, the Namchik—Namphuk Coalfield happens to be the eastern extension of the Namdang synclinal fold of the adjacent Makum Coalfield

Existence of as many as five workable coal seams have been proved, of which the middle seam ranges in thickness from 4/5 to 19 m and the rest 1 to 5 m only.

The coal is generally of high volatile, high sulphur, subituminous type Reserve is estimated at 90 million tonnes, of which 17 million tonnes have been proved by drilling.

Miao Bum Coalfield is however the easterly extension of the Namchik-Namphuk deposit. Two major seams have been established in the area with a cumulative thickness of about 10 m and a reserve of about 6 million tonnes within a depth of 200 m down dip.

The Central Fuel Research Institute proved the suitability of Makum coal as a coking blend with the Jharia-Raniganj coal. It is expected that the Namchik coal may also prove to be equally suitable. The coal in general is suitable for use in the manufacture of synthetic petroleum and subjection to low temperature carbonization and generation of thermal power.

Some crushed and powdery coal occurs as interbedded seams with sandstone and slaty shales of Gondwana age (about 250 million years old) just north of the foothills in Kameng district. At places the seams attain a thickness of 5 m or more.

Occurrence in a tectonically disturbed disposition and the resultant fracturing of the coal render it to be of doubtful economic viability. Its feasibility to mining by modern methods and consequent industrial application are therefore yet to be established.

Though the coal bearing Gondwana rocks continue further east through Subansiri and Siang districts, the coal seams deteriorate further in thickness as well as in quality.

Polymetallic Sulphide Ore . Sulphides of copper and iron, associated with cobalt, nickel and zinc occur as pockets at a number of places on the watershed of Gamje nala and Rup nala the two small tributaries of Ranga river. Chalocopyrite, a sulphide of copper, pyrrhotite, predominantly an iron sulphide and pyrite, a very commonly known iron sulphide occur in the area in intimate association The most interesting point is that the pyrite contains some cobalt, a strategic metal of which the country is acutely in short supply.

The samples of ore from the area have been tested to contain copper from 0.5 per cent upto 1 per cent and the cobalt content in the pyrite has been found to go as high as 2 2 per cent The investigation has been geared up recently and the potentiality of the deposits awaits through assessment by detailed examination that is already in hand. Their economic viability, if proved n the near future, will surely make a big impact leading to a spurt in industrialisation of the region as a whole

Sulphide mineralisation of minor importance has also been noticed near Yazali, Ziro-Tamen, Saddle and Lamdak in Subansiri district, Bara Rupak, Liromoba Kambang etc. in Siang district and Tellu Valley and Dibang Valley in Lohit district.

Limestone and Dolomite : Arunachal can boast of the widely occurring deposits of limestone and dolomite that hold stupendous reserves. A detailed study of these occurrences is yet to be completed though the deposits of limestone at in Lohit district and that of do in Dedza and Rupa are Kameng district have been ex ed in a preliminary sense.

The Dedza dolomite has traced over a length of more 1.5 km with an average thic of 300 metres. The tentative re has been estimated at 58 m tonnes.

The dolomite at Rupa is abou metre thick on the average are a few other bands in the ranging in thickness from 5 t metres. A preliminary estimate the reserve at 320 million to taking into consideration all dolomite bands that occur in area.

The quality of these dolomite a whole meets the specification flux grade variety that is require steel melting furnaces and of wh the known fields of supply are c leting fast in the country

Limestone occurs near Tiding, course quite far away from nearest railhead available now Talop, lying at a distance of 140 from the deposits. The limesto deposit extends along a length 2 26 km with a width of 170 m, ov which a preliminary estimate of r serve has been worked out at 14 million tonnes. The limestone is good quality and much of it is quit upto the specification of flux grade

It is also suitable for use in th manufacture of sandlime brick which, if produced, will imme diately have a ready market Arunachal and adjoining parts Assam.

Occurrence of limestone has als been reported from different local ties in Subansiri district viz Yaza Khetabari, Kamala river and Talih etc as well as from Dali and Kab in Siang district. Some of thes can be utilised locally for lime burn ing and agricultural purposes

Marble : White, coarse texture marble occurs in Dirang area, ver close to Bomdila-Tawang road in Kameng district. A massive and compact variety, about 30 metre in thickness has been observed to ex tend for about 20 km. on the righ bank of Bichom river. This is also exposed in the road cuttings on Sepla road

Occurrence of a high-silica, high magnesia marble has been reported from the banks of Tezu and Dor rivers in Lohit district. The reserve in these deposits have been estimated tentatively over a depth of 50 m The Tezu river deposit account for a probable reserve of 30 millio

tonnes and the latter, 48 million t.

The marbles are suitable for use as feed in lime-burning kilns and also as good building stone. Traverses undertaken in Lohit district have resulted in locating a 200 meter thick marble near Bambi village in Tellu valley and several other bands ranging in thickness from 40 m to 200 m in Dibang valley. Details of these deposits, so far as quality and reserve are concerned, are yet to be ascertained.

Graphite : Small lens shaped deposits of flaky graphite occur near Lamdak on the Ziro-Daporijo road, Subansiri District, with an indicated reserve of about 25,000 tonnes. The preliminary beneficiation tests undertaken in the Regional Research Laboratory, Jorhat, have shown quite encouraging results indicating its suitability in the manufacture of common lead pencil.

An amorphous variety of graphite occurs in schist rock near Tai village, about 37 km from Bame in Siang district. A preliminary estimate indicates that the reserve of graphite rock within a depth of 130 m, downdip, may even go upto the 10.35 million tonnes.

Around Lalpani in Lohit District (50 km from Tezu on Tezu-Hayuliang road) graphite bearing schist rocks occur in which fine to medium grained flakes of graphite is present in association with mica. Soft and earthy graphite in bands upto 1 m thick area also of common occurrence in the country rock of this area.

Total estimated reserve within a depth of 100 m down dip is about 71 million tonnes. The average graphite, carbon content is 5.86 per cent.

A small body of graphite having a width of 800 m has been reported from near Hunli. It is rather disappointing that while the reserves of graphite in Lohit district are significant these are not readily amenable to beneficiation within the existing workable economics of graphite industry.

Value of this mineral lies in its use in the manufacture of a host of important articles like crucibles, furnace lining, carbon brush and pigment for paint. Its use in the manufacture of common lead pencils as the principal ingredient carves out a prominent role for it in the shaping of small scale local industries in the State. Manufacture of sophisticated articles other than lead pencil demands a high degree of purity. Whether the graphites of Arunachal can attain that purity or not is too early to comment now.

iron ore have been reported from Lamdak, Godak, Tala (Kamala valley) etc. in Subansiri district, and near Tribin, Late, Yomcha etc. in Siang district. These can be utilized locally in the manufacture of domestic and agricultural tools in small scale industries.

Rock Phosphate : Some dark coloured shales and calcareous bands occurring in the Gondwana rocks indicated P_2O_5 content upto 7 per cent. No distinct zones of phosphorite however could be located so far. The marine intercalations occurring in the said rocks are however considered potential for rock phosphate concentration. Only traces of phosphate were found in rocks of several localities in Siang district. Sometimes after grinding phosphorite can be used directly as fertiliser while it can also go into industry for the manufacture of ferti-

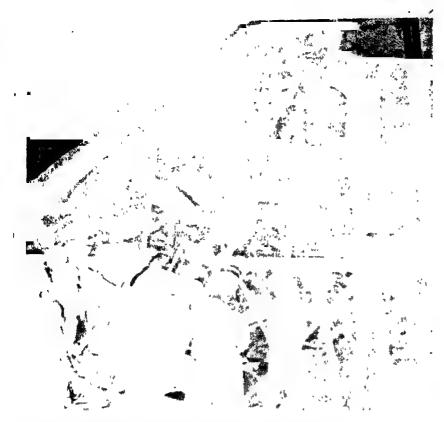
Iron ore : Small occurrences of

lisers like super phosphate.

Saline Springs and Efflorescence : Saline efflorescence within upper Tertiary sandstones, (10-20 m.y. old) locally known as "pung" and often used by wild animals as 'salt licks' are observed in a number of localities in Kameng, Subansiri and Tirap districts. The 'Brine wells' in Tirap were once upon a time the main source of salt in the region. This source however came to be neglected after commercially manufactured salt entered the local market.

The widespread occurrence of brine warrants critical examination of the Disang Shales for locating zones rich in potash salts that find use in the manufacture of fertilisers.

Thermal Springs : About 30 hot springs were located in Subsnsiri district as a result of the Multidiscip-

A hazardous crossing of a river by a ropeway in Lohit District. *Photo courtesy I.A. Khan*

To the exploring geologist and the miner, Arunachal offers a hostile welcome. Still, young and intrepid scientists and workers enjoy the challenge and the thrill.

linary Expedition organised
Geological Survey of India i
75. The temperature of the
water varies from 37°C to
and the discharge from 0.5 to
per second. These springs
mainly from rocks like qua
and phyllites and are control
structural lineaments.

In Kameng district, hot s
discharging water with sulpl
smell were located about 2 kr
of Dirang at two spots wi
distance of 500 metres, w
third one was located a littl
of Bishun. The temperature
water ranges from 34.5°C to 3

After identifying the thera
value of the spring water the
bility of developing some of
hot springs as 'Spa' may be c
dered. Demand in the local m
in the State and adjoining A
can be explored for mineral
that can be hygienically bottl
a local small scale industry
tablished at a suitable locatio

Before summarising the acc
presented above it is worthwhi
note that the coal fields of Tirap
trict can be developed to utilise
coal for power generation ar
meeting the demand for fuel of
other industry e g. Paper Mil
Cement Plant that can be se
in the State with the available
material Occurrence of natural
fields in Tirap district render the
suitable for manufacture of syn
tic petroleum if feasibility of es
lishing such a sophisticated pla
ever envisaged The coal may
be utilised as a blend with be
grade coal for metallurgical purpo

Dolomite lime is preferred n
lime in the 'sulphite process' of
making paper pulp. Since Arunac
is endowed with an abundance
raw materials for paper manuf
ture, some of the dolomite can
profitably utilised if paper m
come to be set up.

Effort should be continued
upgrade the graphites by suita
benefication for meeting the nee
of graphite industry. In short, t
available resources can be utilis
to the extent the existing infr
structure permits till such time
major industries can come up ar
take over their consumption.

With the advancement of scient
fic technology and increasing huma
endeavour giving a spurt to dev
lopmental activities in the State, th
future will probably bring to ligl
more resources that lie hidden
accelerating thereby the process c
all round development of Arunacha

Arunachal's Response to The Challenge of Development

K A. A. RAJA
Lieutenant Governor

ANY one visiting Arunachal Pradesh for the second time after a lapse of 20 years will see that the territory and its inhabitants have changed beyond recognition The achievements in the field of education, health, agriculture, horticulture and communications are so striking that they can only be characterised as a revolution The rich, untapped resources of the territory are its hydel potential, minerals and horticulture products. The enthusiasm with which the people have responded to the challenge of development is the most promising indication that the future of Arunachal is secure A good deal of hard work has gone into building the Arunachal of today and much more yet remains to be done to make it a towering asset to the nation

SHRI B.K NEHRU, the former Governor of the five North-Eastern States and now India's High Commissioner in England in a recent article, while discussing the socio-economic transformation in Arunachal Pradesh has observed: "To bring about this transformation in the course of a generation in an area in many parts of which the wheel of a helicopter was the first wheel the inhabitants ever saw, and to bring it about without any violence or any loss of identity is an achievement the like of which I am not aware of in any part of the world".

The above observation by an illustrious administrator, who headed the administration of this Union Territory for five years summarises the long story of progress that Arunachal Pradesh has made after Independence. This is indeed a fascinating story The manner in which Arunachal Pradesh has been trying to make up for the neglect of centuries is unique The territory has taken rapid strides in different fields and any casual second-timer to this remote north-eastern corner of India can sense the breeze of change that has now been sweeping across its hills and valleys without disturbing the even tenor of life of the people.

What has happened in Arunachal Pradesh in the last few decades is a silent revolution and the story of this 'leap-forward' should begin with a brief account of the progress made in the field of education. It is here that progress has been phenomenal, and to those who might have visited this region about 20 years ago it might even appear incredible

In 1947 there were only three schools with a student strength of about 75 for the entire territory covering an area of 83,000 sq. kilometres Today, there are more than 700 educational institutions of various types including 700 LP Schools 80 MW Schools, 21 Higher Secondary Schools and a College providing Arts as well as Science courses Over 45,000 students are studying in these institutions Besides, nearly 500 students, including a large number of girls, are pursuing higher studies in different parts of the country The people of Arunachal Pradesh now boast of schools of really very high standards, particularly the two Ramakrishna Mission Schools at Along and Deomali and the Sarada Mission School at Khonsa. Within a period of 25 years the percentage of literacy has gone up from almost nil to 11 20 The most striking feature in the matter of expansion of educational facilities has been the tremendous urge of the local people to get their sons and daughters educated The villagers come forward voluntarily to construct the school buildings and living quarters for the teacher. The demand for more schools continues to grow and, in fact, occasionally we find it difficult to cope with it due to constraints of trained men and money. Education has been diversified and more stress is being laid on science teaching. Whereas even in the late forties there was not a single graduate in Arunachal Pradesh, today Arunachal has produced its own

Engineers, Doctors, Professors and Administrators.

Arunachal has also contributed in her humble way to the defence forces with two Commissioned Officers — one in the Army and the other in the Air Force. The new generation that is coming up has developed a sense of belonging to a bigger society that is 'India' and have brought the Arunachal society gradually into the main stream of India's national life. By any standard, this is an impressive achievement.

The biggest development prerequisite of the territory was, and continues to be, communications. Fortunately this need has been substantially met. Although development of communication in an area with formidable mountains and turbulent rivers and streams is always a problem of great magnitude, the determination of the officials and the enthusiasm of the local people have helped to overcome these hurdles. Steep mountains were bored, hard rocks at dizzy heights were cut and turbulent rivers were negotiated and bridged. Roads came up in different corners, opening up considerable areas of the Territory. When the country attained Independence this frontier belt had only two roads covering a little over 100 kilometres. And today, there are nearly 3000 Kms of surfaced roads besides more than 4000 Kms of bridle paths and porter tracks. All the district headquarters and almost all the subdivisional headquarters besides a number of remote administrative centres are connected by all weather roads. Transport services, both passenger and goods, ply on a number of these routes. Twenty years ago, no such transport service existed. Recently the Government has introduced State Transport Service on two selected roads and the proposal is to extend these services to all the other important routes.

Public Health was one of the most neglected sectors in Arunachal Pradesh even immediately after Independence. Although a healthy society pre-requires good and adequate medical coverage for the people, hardly anything was done in this regard, till about 1949. The population remained uncovered except for occasional visits of doctors touring with administrative columns. There were only two dispensaries for the entire territory and these were located at the foothills. Things have since improved tremendously. Today, there are 120 Health Units, Hospitals and Mobile Medical Teams, including 9 General Hospitals. Nearly 1200 beds have been provided in the hospitals. Specialised services have been introduced and X-Ray plants and Public Health Laboratories established. There is a doctor for every 3,363 persons, a nurse for every 5,701 persons and a hospital bed for every 393 persons. The average availability of doctors and hospital beds per 1000 population is higher in Arunachal Pradesh as compared to all-India average. More than 100 Health Assistants and an equal number of Auxiliary Nurses and Mid wives have been trained from among the local people. The most noteworthy thing in this regard is the change of outlook of the local people towards scientific treatment of diseases. There was a day when the villager was averse to the idea of visiting a hospital for treatment of any ailment. He would call the village medicine man or the priest for cure. This attitude has undergone a radical change. The villagers now invariably consult the doctor even for minor troubles The village medicine man is being gradually replaced by the doctor, not because the Government has forced the doctor on the people, but because the people themselves have opted for him.

Arunachal's economy is basically rural and agricultural, as nearly 95 per cent of the people either directly or indirectly depend on agriculture. And yet, this vital sector of the people's economy remained neglected and disorganised. Twentyfive years ago agriculture in this area was poor and the activities ranged from 'food gathering' to cultivation through slash and burning, commonly known as Jhooming. It was from the late fifties, particularly from the beginning of the Third Five Year Plan, that systematic efforts have been made to improve the traditional and backward agriculture of the Arunachal area. A multipronged drive was launched to develop agriculture. It included expansion of area under permanent cultivation, developing land for permanent cultivation, better irrigation facilities, introduction of improved methods and extensive cultivation, development of animal husbandry and horticulture etc.

The organised efforts of the government, aided by people's enthusiastic cooperation, have paid good dividends. In the First Five Year Plan, for instance, the investment in agriculture was only Rs 29 lakh and

Health services in Arunachal Pradesh are better than the All-India average

the local food production at the end of the First Plan stood at only 57,000 tonnes Allocations in subsequent plans were substantially increased and the Fifth Plan allocation for agriculture and allied sector is of the order of Rs. 1096 lakh. Food production during 1975-76 increased by 4,500 tonnes bringing the total annual food production to a new height of 96,000 tonnes. The gap between the territory's requirement of food and local production has thus been substantially narrowed. Some of the important schemes under agricultural development programme were expansion of permanent cultivation to replace Jhooming, introduction of high yielding varieties, expansion of irrigation facilities and development of horticulture. An area of nearly 22,000 hectares is now under permanent cultivation.

The most interesting part of the story of agricultural development in Arunachal Pradesh is the unique response from the local tribal people to new ideas and methods. An example will bear out this statement. In the Basar area of Siang District the local farmers tried as many as 82 different varieties of paddy of which 12 varieties were finally found to be suitable and they have introduced all these varieties in their fields. Horticulture has been developing fast and Arunachal apples have already captured markets in Assam. The Government have decided to go in a big way in regard to introducing plantation crops and other cash crops suitable for the territory. in fact, preliminary works for raising tea plantation over a compact area of 1000 acres in Siang district have

already begun.

Arunachal Pradesh is endowed with vast forest wealth awaiting commercial exploitation. The forest resources are being tapped and extracted on scientific lines backed up by a programme of replantation. Annual forest revenue has been steadily increasing during the last twenty years and now it totals nearly Rs 2.20 crore. Nearly 7,500 sq. kilometres of forest area have been reserved and over 11,000 hectares of plantations have been created. Similarly, progress in the matter of natural regeneration has been steady - the area under natural regeneration having gone up nearly 112% during the last 20 years. As regards forest industries, three big saw mills have been in operation and a number of smaller units have also sprung up in different parts of the territory run mainly by local entrepreneurs. For better management of forests as well as to raise various cash crops which have great scope in the territory, a Forest Development Corporation is being set up shortly.

Steady progress has been recorded in the cooperative sector. There are now 104 cooperative societies including a number of Transport and School Cooperative Societies. The performance of these societies has been encouraging. The cooperative societies are also in the process of rapidly taking over the entire public distribution system of foodgrains and essential commodities in all the land-fed stations and have almost achieved their target in this respect. They have also entered the field of procurement of paddy and mustard seeds.

Arunachal has also immense power potential—the territory's hydel power potential is estimated roughly at 20,000 MW which is nearly half of the country's total potential. A small beginning was made in 1972 to harness this potential by installing a few micro-hydel projects. Seven such schemes have been commissioned and by March 1977 three medium hydel projects with a capacity of 4.25 MW will be completed. Once this vast potential is even partially harnessed and the power thus generated is released, it will bring about vast changes in the rural society and the economy is bound to get a tremendous boost.

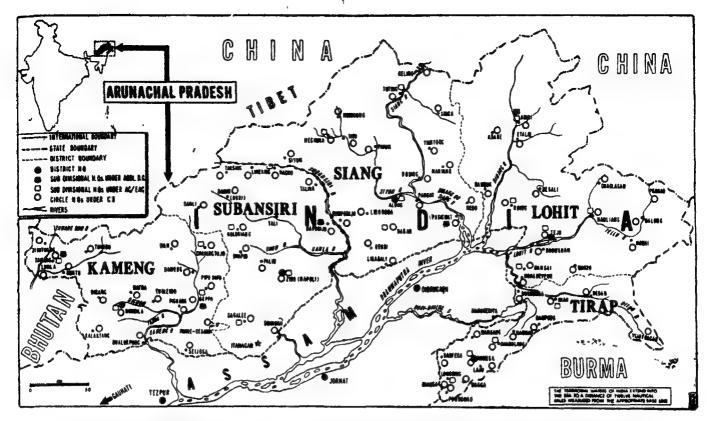
The story will not be complete without reference to the administrative and political changes which this territory has seen during the past few years. Arunachal successfully completed a long but peaceful march from the village council stage to thes tage of Legislative Assembly. The territory attained its distinctive step when in 1972 it became a Union Territory. In 1975 with a 30-member Legislative Assembly brought into being with its Council of Ministers it attained the status of a fullfledged Union Territory. The Ministry is made up of young men who have already proved their capacity to provide the State with a dynamic leadership. The Legislators have also demonstrated rare maturity in their deliberations.

The democratic way of functioning is not foreign to the ethos of the people. For untold centuries these communities have functioned through their own popular councils and one can confidently look forward to the successful functioning of the parliamentary system here. Personally, I feel excited when I look ahead at the brighter future of the territory. The march is long, but the steps taken are firm and steady. Therefore, I am quite confident that the goal will not elude the people of the sun-kissed hills of the north-east. □

THE LAND

Yojana Report Continued

A view of Daporijo in Subansiri District

Its land is not like our land,
its sky is not like our sky.
Its sky sends rain down without the originating cause of clouds;
On its ground the green grass sprouts up without any aid from the soil.
It stands outside the circle of the Earth and the bowels of the enveloping sphere.
It has been separated from the word, like the letter *aliph.*
The seasons all begin here at the time of their conclusion elsewhere.
Here there is heat in our winter and chill in our summer.
Its roads are frightful like the path leading to the nook of Dealh;
Fatal to life is its expanse lil the unpeopled City of Destru tion.
Its forests are full of violen like the hearts of the ignorar
Its rivers are beyond limit a estimate like the minds of tl wise.

The Territorial waters of India Extend into the sea to a distance of twelve nautical miles measured from the appropriate base line

These words were written three hundred years ago by Mulla Darvish of Herat who accompanied Mir Jumla in his invasion of Assam when the Ahoms were in power. When the invader entered what is now Arunachal Pradesh, he was bewildered and confused by the terrain, the climate, the dress, the customs and above all, the courage of the people. What was true three hundred years ago, was practically true in the beginning of this century. The land and the people both started changing only since Independence. Of the beauty of this area, William Robinson wrote in 1841 thus: 'Mountains beyond mountains, hurled together in wild confusion, seem to the spectator like the wrecks of a ruined world; and whilst the eye is gratified with the pleasing

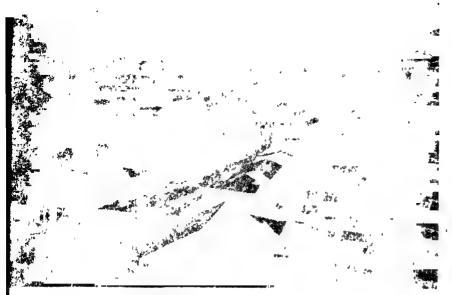
A view of Ziro town in the Apa Tani plateau

panorama, a series of hills innumerable is presented to view, retiring far away in fine perspective, till their blue conical summits are relieved by the proud pinnacles of the Himalayas towering their lofty magazines of tempests and snow midway up to the vertex of the sky, and exhibiting scenes calculated to animate the mind with the sublimest sentiments, and to awaken the most lofty recollections.,

(William Robinson : 1841)

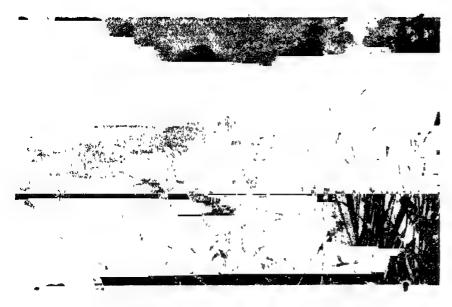
"The snow-clad mountains all along the northern boundary, the river scenery of Siang, the pines and rhododendrons of Kameng, the austere grandeur of the Lohit Valley, the splendid uplands of the Parkoi, the gentle woods and fields of the Apa Tani plateau make the traveller feel as if the spray of an inexhaustible fountain of beauty, was blown into his face. The harshness of life on the one hand and the grandeur and liveliness of its setting on the other has had its effect on the character of the people. They are courageous in facing and overcoming difficulties and they are lovers of fine, strong and beautiful things."

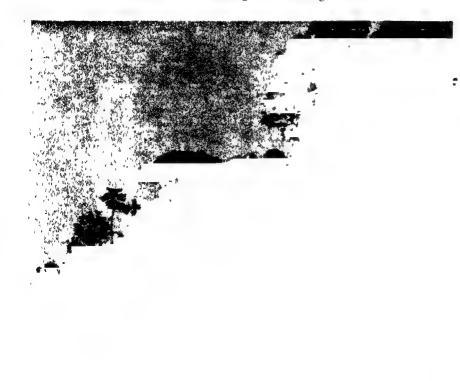
Above · Crossing the river Lohit in winter. It is a canoe used by local people for fishi in the river. During monsoon crossing the turbulent river by primitive craft can very dangerous.

Below · Sun set anywhere in Arunachal is an unforgettable spectacle. The fol age, the hills, the streams and cascades add richness and colour to t already beautiful spectacle

The township of Hapoli, 1 km. from Ziro, now the headquarters of Subansiri District is a recent construction.

Arunachal is, in many respects, an unusual part of India. Its terrain is different from any that one has seen in the Himalayan region in the west. 18,578 sq. km. metres in area and with a population of less than half a million, Arunachal Pradesh stretches from the eternally snowy mountains forming the southern limits of Tibet to the hot and humid plains of Bharama putra Valley. It is bounded by Brahma in the west, the Tibetan and the Sikiang regions of China to the north and east and Burma to the southeast. The hills run like the waves of the sea, one upon another, and countless number of streams roar and murmur in the valleys below at great speed. Level ground exists more as an exception than as a rule. In the remote regions which are connected only by foot tracks passing through thick forests small communities of people live like human islands, practically living off from the rest of the world. Mostly, the local people live off the land, though in recent years with the provision of facilities for administration, education, health and so on, their day-to-day needs are air-dropped. Tribal people cultivate rice, millet or maize on the slopes of hills after clearing the forests. This is indeed a different land, and what Mulla Darvesh of Herat had to say is still partly true in areas which have not been opened up by roads and communication.

The weather in Arunachal Pradesh can also be very capricious. Even in the summer months it can be cloudy for many hours on end and the sky sends down showers without warning. Fog can be encountered by the travel-

Fishing in the Siang river on a country craft

Paschin river near Itanagar, the capital

Below A road being built to Itanagar

tic lives, has influenced their architecture which has not evolved beyond pine-dwellings built on timber or bamboo stilts to avoid the dampness of the ground.

The streams and rivers are well nigh countless. They look like small, beautiful, meandering tapes of water during winter, but become raging torrents during the monsoon. When this happens, communication even for the local inhabitants becomes extremely difficult and harzardous, affecting the gathering of fuel, water and food so necessary for their living. So the local people have to devise their own unique solutions to bridge the hills with remarkable cane bridges which impress you as marvels of engineering skill. The elements — the sun, the rain, the trees and vegetation etc. are so important to the inhabitants that they attribute to them divine qualities. Nature has also endowed this difficult terrain with unsurpassed beauty. The snow-capped mountains, the majestic forests, the gurgling rivers and streams, the birds, the butterflies and almost everything that Nature has endowed on this land has created in the people an innate sense of beauty which manifests itself in their dances and their crafts.

If nature is harsh and the people are poor, the inhabitants have not been deprived of their sense of pride or courage or hospitality. There are no rich landlords here and no money-lenders to exploit the poor. The traveller will never see a begger anywhere. The people consume home-made beer and make their own cloth. Their family and traditional institutions are so organised that the infants and old people are well cared for and justice is dispensed promptly by the people's courts according to custom. Very little crime is reported. Farmers store their grain in granaries away from their homes in stilted huts with thatched roofs and they are left unlocked. Stealing another man's food is unheard of. Lying and cheating are equally uncommon and whatever religion or belief they follow, there is a strong ethical foundation to the everyday life and conduct of the people of Arunachal Pradesh.

□□□

LAND IS EXTREMELY precious to the tribal people not only because of the scarcity but also because of their total dependence on the forests and streams which provide their only source of living. To the tribals of Arunachal as it is perhaps to the tribals anywhere else, what the Government seeks to do by way of land policy and land management is of crucial importance. This is perhaps the most sensitive point in the administration of the territories. It is apparent that the one important reason why the people of Arunachal Pradesh have no serious grouse against the administration is its elightened land policy. The philosophy of the 'Inner Line' protectx the local inhabitants from encroachments on their land by outsiders from the plains. What the Government has done to promote education, health and medical services to the people is already so impressive that the village councils are usually too anxious to part with community land for the construction of hospitals, schools, experimental farms, roads or any public utilities.

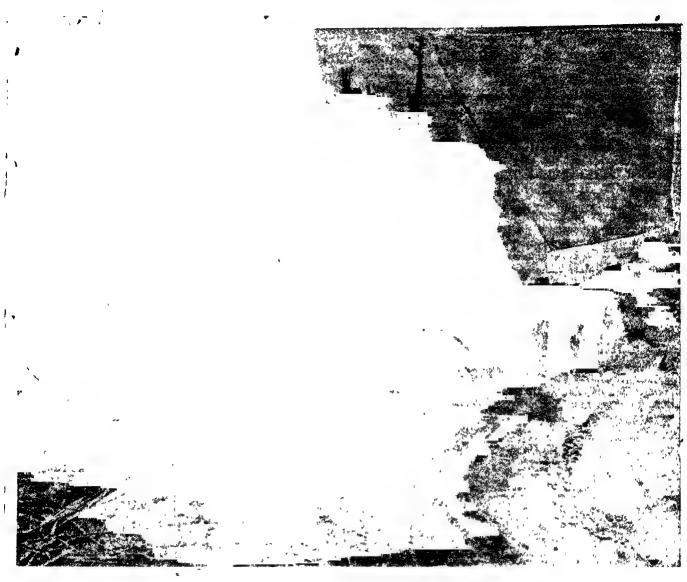
In Arunachal land is owned by

Where the primitive and the modern co-exist

Above Conduits made up of split bamboo leads water from hill streams to irrigate small farmlands.

Below An orange tree in a garden near Daporijo

individuals, the clan, as well as t village. The Apa Tanis who inha a compact plateau in Ziro, Suban district and who have given up jhooming practice and settled d to regular cultivation have de loped a strong sense of private p perty. The Apa Tanis social sta and wealth is measured in terms of land he possesses. The clan la consists of meadows, bam groves, pines and other useful tr as well as burial grounds where the members enjoy the exclu sights for hunting. Common vill lands, however, consist of sm stretches of pasture and forests tra

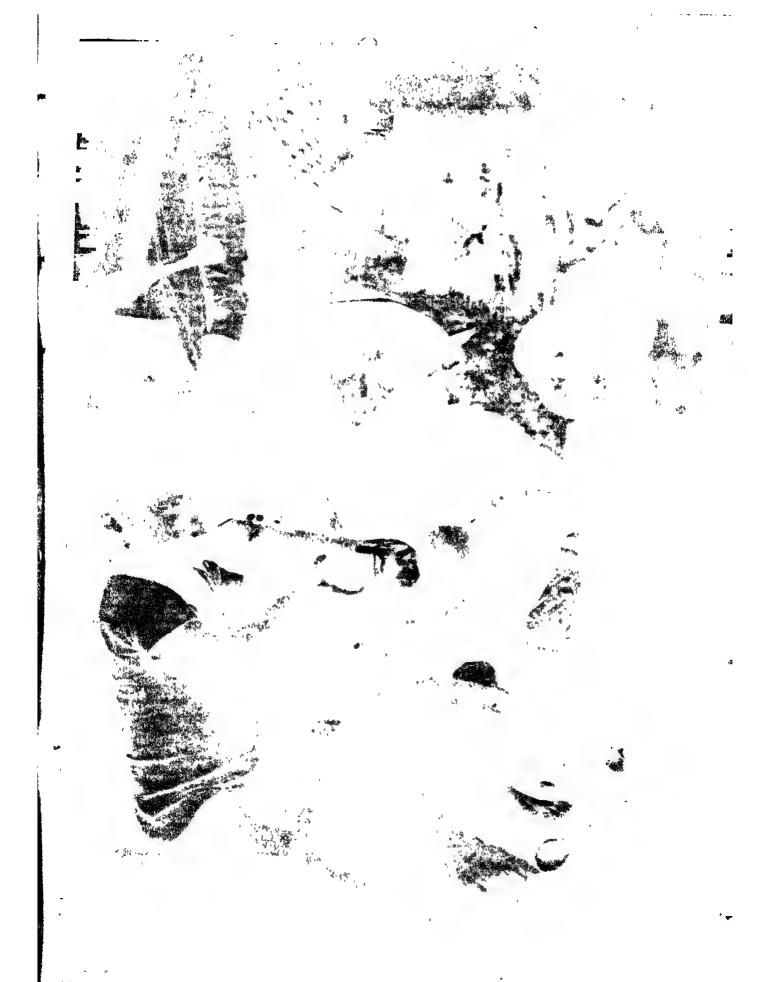
The tribes which practise jhoom or shifting cultivation own lands common by tradition or agreem with neighbouring villages. It is responsibility and privilege of entire community to preserve integrity of its boundaries wi which are meadows, streams, bam bushes and trees. Individual or fa ownership is established within main framework of the comm possession. The hills for jhoom are selected every year after a cussion in the Kebang or village co cil and the priests and the en community – men, women and c dren – participate in clearing jungle, sowing and harvesting. Jho ing is a cooperative endeavour. actual cutting of trees in an

Another view of the road construction near Itanagar

marked for jhoom is a hard and arduous job which the men-folk do. Before embarking on it various religious rituals are observed to appease the spirits of the hill and forest. Whatever the principle underlying the ownership of land, no tribal will part with his land to a non-tribal and this is one reason why speculators from the plains have been scrupulously kept out from exploitation of any kind. Exploitation, if any, is done by middle-men or trader from the plains who buy the forest or agricultural produce from the tribals for marketing outside the state.

Land to the tribals is much more than property. History, legends and deep rooted sentiments bind the people to their land and land is also synonymous with reverence for their dead ancestors whose spirits are believed to haunt the place of their original habitation.

In spite of their love for landled property, the tribal people of Arunachal have a strongly ingrained social sense which helps them to undertake and accomplish projects whose benefits are likely to accrue to the whole community. No one watches on if the neighbour's house catches fire; no one is satisfied with verbal sympathies if the neighbour is taken ill. The spirit of cooperation comes naturally to them because for ages they have lived as close-knit societies, often exposed to enemy raids, floods. disease or other calamities. Verrier Elwin who made a very close study of the tribals of Arunachal Pradesh wrote, as far as 20 years ago, that 'each household, each clan, each hamlet thinks, lives and works as a single unit. In the old days of war the people used to meet together and go out to fight as a unified body. Today when peace has come to them they still retain almost military unity and discipline.'

We were able to see this spirit very much in evidence in village councils (see also article by the Chief Minister elsewhere), an institution which exists among practically all the tribals. Offences against tribal law are taken serious note of and heavy fines are imposed on the culprits by the council. Their socio-cultural tradition is such that honesty is the corner-stone of their personal conduct. There is, therefore, great scope for the spread of the cooperative movement in Arunachal Pradesh. Road building is an activity that will go on for many years in this territory. It is a facility which the people themselves value very much and while there are many instances of voluntary labour coming forward to work the road building

Facing page : The Cheery Apong is an integral part of the people's diet and children are introduced to its pleasures without consideration of age.

projects the idea of farming out long stretches of roads to a whole community on a contract basis can be tried in places where the village is practically cut off from the outside world. The tendency among the Adis, we learnt, is to take up a road building contract and employ outside labour, mostly consisting of Nepalese, Beharis, Keralites, and other south Indians. With the spread of education and proliferation of needs and fashions, money is acquiring a new value and the tribal contractors know that there is big money in this business. In principle it stands to reason that profitable contracts should go to the local people and not to outsiders. But as Shri Abraham, an Assistant Engineer in the C.P.W.D. Itanagar, observed this might eventually introduce a new class of wealthy people among small communities, given to an urban way of living and all the psychological consequences that might follow. Another engineer suggested that it may be more practical for the C.P.W.D. to manage the entire construction work with whatever labour is available, from within the territory or from without. The Inner Line' is a barrier to the migration of outside labour and it protects the people of Arunachal ideally. They have nothing to fear by way of encroachment and they know it. They have a good deal to offer by way of adopting simple intermediate technology in the field of agriculture, horticulture, house building and town planning and for starting small industries like oil crushing, carpentry, fruit canning etc.

The land of Arunachal is vast as compared to its population. Assam is smaller than Arunachal with a population of over 18 millions and Arunachal has barely a population of half a million divided into many tribes, living in remote regions, often cut off from one another and steeped in time-honoured beliefs and life styles. The question is— and it is big question—how soon is planned development going to take this sensitive region with a small population to a level which obtains in the plains.

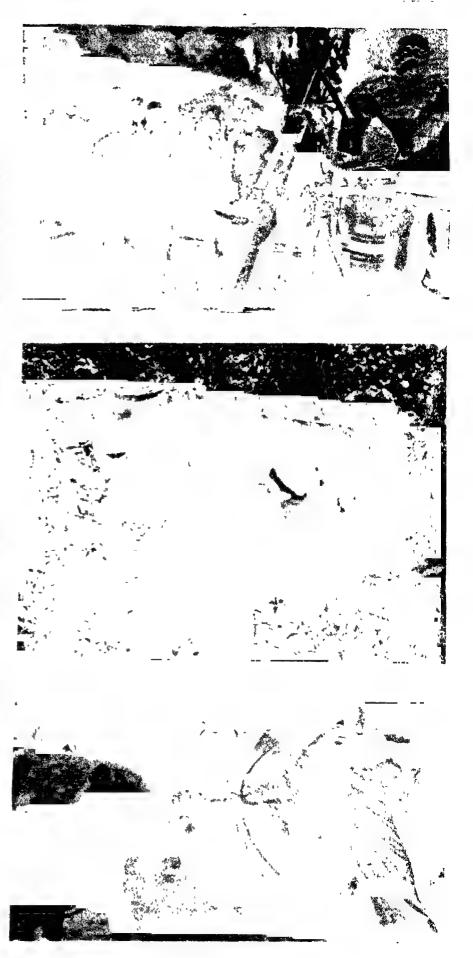
The answer has to come both from the people and the administrators. A paper plan with generous fiscal provisions will not fully solve problem. The primary question is one of involvement of the entire officialdom at all levels from the Lt. Governor and the Chief Minister to the humblest Gram Sevak. It was a most heart warming experience for the Yojana Party to sample for themselves the sense of dedication in most if not all, places.

THE MITHUN

A Mithun (bos frontalis) which extends into Burma and the Malay Peninsula, is a typical representative of an Indo-Malaya group of wild cattle. The animal is characterised by the forward curve and great elevation of the ridge between the horns. It roams about freely in the jungle in Arunachal, finding its own food and is brought home only when it is to be slaughtered or exchanged in barter.

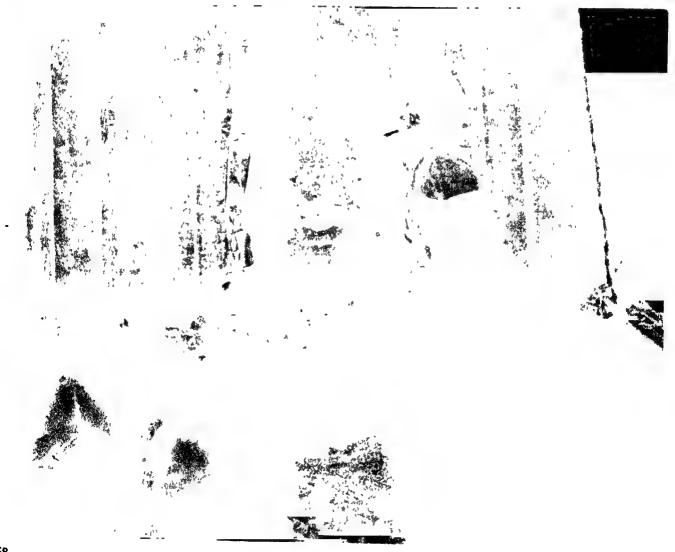
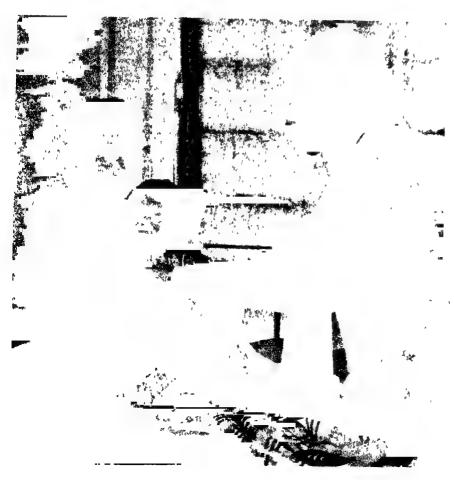
Mithun plays a very important role in the socio-economic life of the people. As indication of social status and an essential item of requirement in most of the feasts of the people of Arunachal Pradesh including religious rights, these animals are also in great demand, and are useful as a means of payment. But as the Mithun is the highest "denomination coin" which has to be taken and paid in full, it is used in big transactions only. Mithun is also exchanged for a bride. The Apatanis never like to sell their land, but they will consider a sale, if they are offered mithuns in exchange.

Although the Mithuns are allowed to roam freely in the jungles and breed, every Mithun recognises its owner who keeps touch with the animal off and on by offering it salt. No one steals another's Mithun and no one will part with it easily except as a bride-price or for sacrifice. An individual's affluence is often judged by the number of Mithuns he owns or sacrifices at community festivals.

The people of Arunachal do not drink milk and even if they keep cattle, they extract no milk from their cows. The Mithun, particularly, is never milked but sacrificed and eaten.

HEALTH AND MEDICAL CARE

THE GROWTH OF health and hospital facilities in Arunachal Pradesh in the last 20 years is one of the most remarkable achievements in the development of the Territory. With over 100 hospitals, and 1250 beds and 20 mobile teams the facilities available for the half million people of Arunachal is higher than the all-India average. Not a small part of this achievement is due to the drive and enthusiasm of the Lt Governor and the dedication of the host of doctors and nurses who have opted for service in this difficult area. Many of them have still to work under conditions of great personal discomfort and loneliness, largely because of want of communications and absence of social life they are used to in the bigger towns and cities. But all of them have been provided free housing and higher allowances though this may not be sufficient compensation for the often hard life they have to live. A compensating factor, however, is that most of them are young men and women who feel the thrill of pioneering and experience the joy of extending their healing, friendly touch to people who are most in need of it.

Most common of the diseases to which the tribals are susceptible are scabies, eczema and water-borne diseases besides goitre. Goitre, however, is being tackled by supplying to the people iodized salt to the tribals. The tribals have taken to modern medicine rather slowly though with

Above Apa Tanis come to the hospital for all ailments *Below* : But with some other tribes the doctor's help is sought only when the witch doctor fails to cure. Here the witch doctor chants hymns to ward off the evil spirits

Tribal parents bring their sick children readily to the hospital. Eczema and water borne diseases are very common in the Territory.

the spread of education they have shown increasing interest in hospitals. The doctors we met were almost of the same opinion: "the people have not yet realised the value of prevention. They live in unhygienic surroundings, drink contaminated or impure water, and cannot afford balanced food. Besides, they still preserve their ancient faith in rituals and witch-doctors whose help they seek first before coming to us. It is only when these fail them they come to us for treatment and it is often too late."

There is the additional fact that the food habits of these people are strange. They are omnivorous in their eating habits and eat practically every kind of meat and many insects including a type of bugs found on the river-side which do no good to their health. Leprosy is rather common, and so is tuberculosis. Almost every major hospital has a sanatorium attached to it. Although most of the hospitals have maternity wards attached to them, they are not yet popular with the tribal women. We found many vacant beds in the maternity wing and the medical officers in charge told us that the woman who develops labour pains would rather retire into a nearby jungle, deliver herself of the child, and return home with the new-born babe in the arms! Only when a case develops complications is the doctor called in. This isn't also easy either because, for want of communications, the messenger has to walk for hours and even days along jungle tracks to reach the doctor and bring him to the patient.

In Pasighat, Ziro, Along, Bomdila and Tezu very good hospitals have been built and the bed-strength in each, which is sufficient to meet present needs, is being steadily extended. In remote villages unconnected by roads, smaller hospitals have been opened and many of them have X-ray equipment, in-patient wards, and operation theatres.

An essential prerequisite to the health of tribal communities is improvement in the quality of water supply and the people themslves are aware of this deficiency. Mostly the villagers draw water from the hill streams tapping them through bamboo conduits. We saw no wells during our visit to any of the villages. Most house-wives spend hours to obtain water, often from points several kilometres away from their home. With insufficiency of water, personal cleanliness becomes difficult and dirt and disease are normal consequences, affecting the entire environment of villagers.

Above A long queue at a hospital.

Below · The main problem with the people is environmental sanitation and personal health habits.

ITANAGAR, THE *CAPITAL*

The Brick City of Arunachal is rising from the Jungles

When the North Eastern Frontier Agency (NEFA), an administrative nomenclature given by the British rulers – became Arunachal Pradesh, its distinctive regional entity was recognised by the Indian Union. The institution of a full-fledged legislature with a cabinet of Ministers and a Lt. Governor soon followed. What it lacked, however, was a capital city of its own as the administration of this remote north-eastern region was being carried from Shillong, formerly the capital of Assam and now the headquarters of the Government of Meghalaya.

HYDEL POTENTIAL

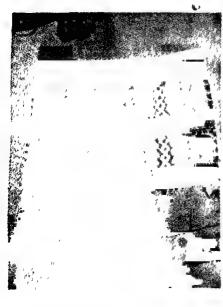
All the Hydel stations in Arunachal are mini projects.

Arunachal Pradesh has *innumerable* river streams *many of which* cascade from 150 to 250 metres. In some places as in the Dirang village, Kameng District, the local people utilise the speed of the stream to energise flour mills.

According to an official estimate made a few years ago by the C.W.P.C., the hydel potential of these streams of Arunachal Pradesh which ultimately empty themselves into the Brahmaputra comes to an astronomical 20 thousand megawatt. Theoretically, Arunachal alone can produce 50 per cent of the hydel potential of the rest of India. The local requirement for electricity and power is extremely limited, because of the paucity of industries. Engineers are of the opinion that from the same hill streams, the tail-race waters of one of the many hydel plants can be utilised at lower levels to start another similar plant. Sometimes three or four hill stations can tap the energy of the same river. The problem, however, is of finance. Although Arunachal does not have, and will perhaps never have, the capacity to utilise this potential, it is a rich source of income because most of the power produced can be sold to Assam which will be only too happy to buy it. If fully utilised, this hydel potential can earn for Arunachal a net income of around Rs. 150 crore which will be enough to more than finance all its development programmes and raise the standard of living of the entire region.

ART AND CRAFTS OF ARUNACHAL

Weaving is a very common craft in Arunachal though there are a few tribes who have never practised the art Unlike elsewhere in India weaving is almost exclusively the work of women. The looms are small and simple and the unique textile designs are invariably woven, never printed; and they have an extraordinarily rich vocabulary associated with weaving and textile designs The cloths woven by the Adis are usually red with blue lines running through the length Yellow and black and white and green are also used in combination The woman's cloth is invariably in narrow strips about 18 inches wide and two such strips are joined together to make the undergarments. The fabrics produced are invariably of pure cotton though sometimes wool and cotton are mixed

Above Now small weaving machines are being introduced at some craft centres

Right : A variety of baskets woven by women for daily use

WOOD-CARVING, some of whose specimens are of the finest kind, are practised by Wanchos, Konyaks and Phoms who live close to the Burma border. The wood carvings recall sometimes the bygone days of head-hunting or they decorate the communal houses. Besides, funerary images also are subjects of carvings. In most carvings of the human figure, the head is given prime attention and the features are usually in low relief Among the Monpas, the speciality is the carving of masks and these are beautiful examples of craftsmanship.

Wood-carvings are sometimes inspired by the need to decorate Morungs. These Morungs are not used for residential purposes, but to house the huge log drums once used in times of war

Above Monpas are excellent creators of wooden masks which are used in dances.

Below A wood-carver working a lathes.

The chieftain's house usually contains carvings on the main pillar of the room and the horizontal beam running across the front of the building The designs are varied and the Mithun and the hornbill motifs are commonly employed besides the stylised tigers, elephants monkeys, dogs etc. The hornbill is a greatly venerated bird in Arunachal and its beaks and feathers are used in the head-gear of many tribals The horn-bill is considered to be a symbol of valour while the Mithun is respected as a symbol of wealth. The carvings of Mithun and Hornbill are often realistic, though often conventionalised The art of wood carving in Arunachal is a 'warrior's art', according to Verrier Elwin and this is bound to change as the traditional skills of the craftsmen now being trained at craft centres undergo aesthetic sophistication.

Top left Reclining Buddha, a wood carving made by the Khamtis. The chain is made of fine quality of grass and it is a speciality of the Noctes

Top right: A bronze tobacco pipe used by the Nishis

Left A carved wooden tobacco pipe of the Wanchos

Below left An inside view of Handicrafts Emporium at Along

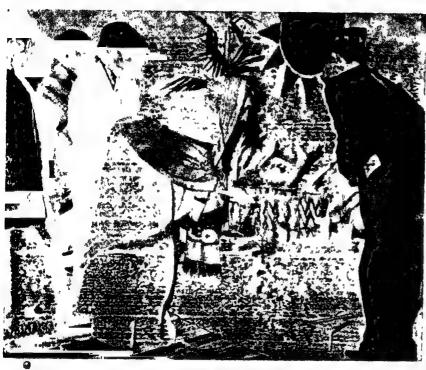
A wood-carver at Longding

DEMOCRACY

NEEDS

DISCIPLINE

RELIGION

A proud diversity of faiths has given strength to the moral fibre of the Arunachal People

Above : Prime Minister Indira Gandhi inaugurating the new Nocte temple at Khonsa
Below . The Dyoni-Polo temple built in Along for the Adi community

Yesterday's faith is today's re- ligion is tomorrow's empty ritua Religion to the simple tribal fol which we so often tend to look a with a sneer, is an integral part o their life. It disciplines their dail conduct and community life b creating unseen bonds between Nature and Man, between famil and the clan and between tribe and tribe. The beliefs, the rituals and the attitudes which go to make up the world-view of these simple folk cannot be laughed away. This is where the social worker and the administrator who are posted in these areas have themselves to be educated if the changes they seek to bring about in the economic and social life of the people have to be real and lasting. Alienation from tradition and the time-honoured social ethics of a people can be disastrous to a people who are exposed to new ideas and modern technology. This is perhaps the field in which Arunachal's imaginative Lt. Governor has shown remarkable understanding. Jawaharlal Nehru said years ago:

> "I am not at all sure which is the better way of living, the tribal or our own. In some respects I am quite certain their's is better. Therefore, it is grosslly presumptuous on our part to approach them with an air of superiority to tell them how to behave or what to do and what not to do."

Every tribal community of Arunachal has its religion, its rituals, its superior deities and lesser spirits. The belief in a supreme God who is good and benevolent is universal. Dyoni-Polo, the Sun-Moon God of the Adi tribes bears some resemblance to INDRA of the early Vedas—ruling the skies and capable of seeing everything. The Tagin priest addresses Dyoni-Polo thus:

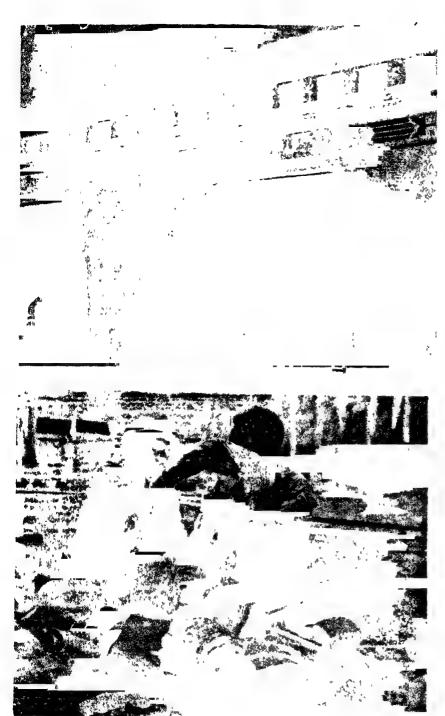
> *You are the greatest of all; you are above all; you see all, You see the lost things, the stolen things. At night you watch the world of the dead. In the day, from the world below, having feasted well, you come in your finest clothes, with splendid ornaments, a shining dao in your hand. You look on every side: you know everything.*

Dyoni-Polo is more a ruler than the Creator of the world and his reign in the heavens is unchallenged. Above everything else he keeps a watch on the deeds of men and extends his hand of protection to the deserving, and is compassionate. The Dyoni-Polo cult which is very

simple and is remarkably free of unseemly rituals holds together the entire Adi Community in the Siang District and even outside. The Administration's policy is not to impose on the people beliefs or practices which are alien to their native tradition but to enrich their cultural heritage by providing, within an atmosphere of freedom, centuries of institutional worship. The newly-built temple of Dyoni-Polo in Along is an instance in point. It combines the architectural features of an Indian temple with shrine and a prayer hall where the lay worshippers can gather on occasions.

A similar temple has been built at Khonsa for the Nocte community which Prime Minister Indira Gandhi recently opened. The Noctes have been under the influence of the Vaishnavites of Assam for over a century and they look to spiritual guidance from religious leaders in the Assam plains.

There are undoubtedly many beliefs and rituals prevalent among the tribal communities which have re-

Left Top **A Shiv Ling discovered by road builders enshrined in a cave temple, a little distance from Daporijo.**
Left **The Parashuram Kund, Tirap District which draws many Hindu pilgrims from the plains**
Left Bottom **A Thai Khamti Buddhist priest in the Chokham temple.**
Bottom **A 13th century image of Ganesh from Malinithan**

semblance to some Hindu cults though they do not share the myths and legends of the Hindus. Whatever the beliefs of the tribal people their tradition is not such as will compromise with the caste system, vegetarianism or taboo of beef and beer. Nor are they likely to view with favour any brand of puritanism in the name of religion. It is not the policy of the Government to mix up programmes of economic development with the beliefs of the people and where the two do clash, as for instance in the field of public health or social environment the policy is to promote change through education and personal example. The keynote to the philosophy of administration is to preserve the social ethic which is associated with tribal religion and which has helped to preserve the pride and nobility of conduct of the Arunachalis.

Marriage as an institution is not related to religion by any of the tribes; but marital fidelity is a virtue which is valued as much as religion. So are the virtues of truth-speaking, hospitality, hard work and kindness. One often wishes that the so-called civilized communities of the plains in whose value-system religion holds an important place gave equal emphasis to the social ethic which characterises the everyday life of the Arunachal people. Translated into material terms, these virtues would add both speed and equality to the entire process of economic development.

Left Above and Below : **Renovating an old Buddhist monastry at Rupa, Kameng. Workers repairing the prayer wheels**

THE PROBLEM OF THE UNDER-PRIVILEGED IS A HUMAN PROBLEM

I would be very happy if the Scheduled Castes and Scheduled Tribes start forgetting that they are Scheduled Castes and Scheduled Tribes; they are Indians who have had a bad deal for centuries. They have not had opportunities for development. They are entitled to these opportunities now and we are doing our best to give them. But if we try to perpetuate the caste system, then it is very difficult to ask other castes not to give way to their own feelings. Either we are all Indians and are all equal or everyone will want something for his own group It is not something we can achieve in a few years, but it is something for which, I think, that we should work very hard.

The problem of the under-privileged is not only they are more economically backward than the others and it is a human problem, a problem of human suffering, but it is also a problem that they have neither their full rights under the costtritution nor can they fulfil their duties towards the country. So we have large masses of people who are not really being able to pull their weight so to speak. We must enable them, to know what their rights are and to live up to the corresponding obligations.

Indira Gandhi

IN ARUNACHAL PEOPLE LOVE TO SING AND DANCE

Left : An old Nocte warrior demonstrates his skill at dance before an admiring audience.

A group of Aka girls dancing. Aka women are extremely fond of ornaments consisting usully of silver chains made of coins and bead decorations and ear-rings made of silver.

Delong, an Adi fencing dance, Pasighat. The movement is very vigorous and the dancing party splits itself into two and dance together as two groups. This is usually done after killing an animal in a hunt.

ONE OF THE chief inspirations for the other arts is the dance, itself the art in which the tribal people find supreme expression of their sense of order, rhythm and delight. To most of the frontier tribes, moreover, the dance is something more than recreation it is a very serious business. The Monpas, Khampas and Sher-

A masked dance by the Lamps of Tawang

dukpens perform their pantomimes, not for show, but at festivals to teach important moral lessons and to bring prosperity or avert disease. The Wanchos and Noctes dance to celebrate victory in war, to encourage the crops to grow and when they bring in the harvest, to give colour to a great feast, to bestow blessings at a wedding The Mishmi priests dance at the time of sacrifice or funeral and for their festivals. The Adis, who have a strongly developed sense of the dance as recreation, also have their ritual dances at which the epics of their race are sung.

This naturally stimulates every form of artistic creation. The dancers put on their best skirts and coats, bring out their finest hats, decorate spears and daos, paint fresh designs on shields, and cover themselves with ornaments, from precious traditional beads to flowers and strips of greenary. The wooden heads and figures popular in Tuensang and Tirap are brought out now, even if they have remained hidden for months, and masks are prepared and painted with fresh colours...

The number of dances particularly, mong the Monpas and the Sherdukpens have certain moral lessons to teach. Compassion to animals and human being and retribution for sin committed in this life are conveyed through dances and pantomimes. The masks worn at these dances are painted in bright colours. Women dancers do not wear masks. And in Tawang only the lama dancers wear masks.

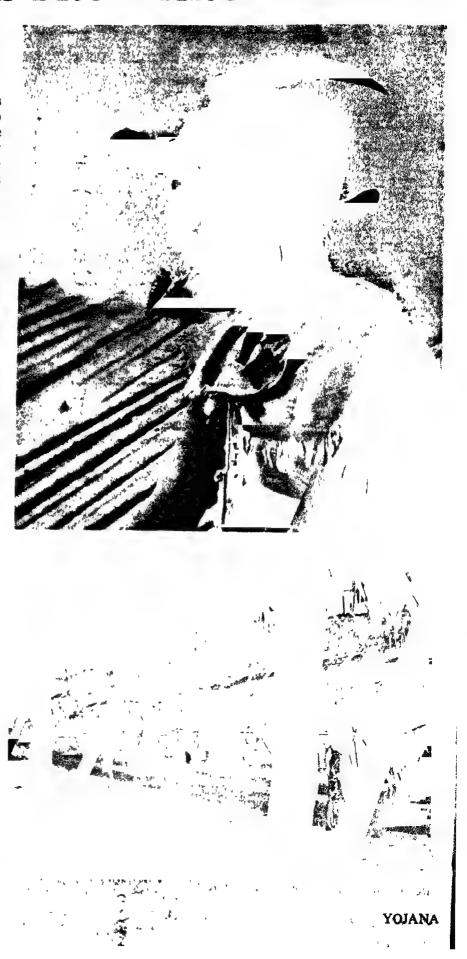
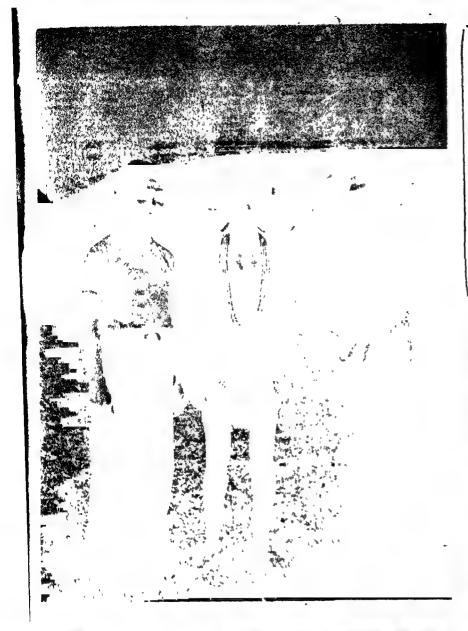
A colourful tribal dance in a village organised on the occasion of the community festival

VIGNETTES FROM ARUNACHAL

No story of Arunachal and its people can be fully told and no comprehension of the immense power of the environment over man is possible unless one actually savours the pleasures and the pains of a journey through this picturesque but difficult land. The constraints imposed by the terrain and the neglect of centuries are being steadily overcome. In the last three decades, roads, electricity and schools have accomplished what centuries of history failed to do for these simple, hard-working people. There are far too many facets to the visible and invisible changes that are coming over them. They cannot be covered in the course of a short tour. But pictures often succeed when words can at best attempt to convey.

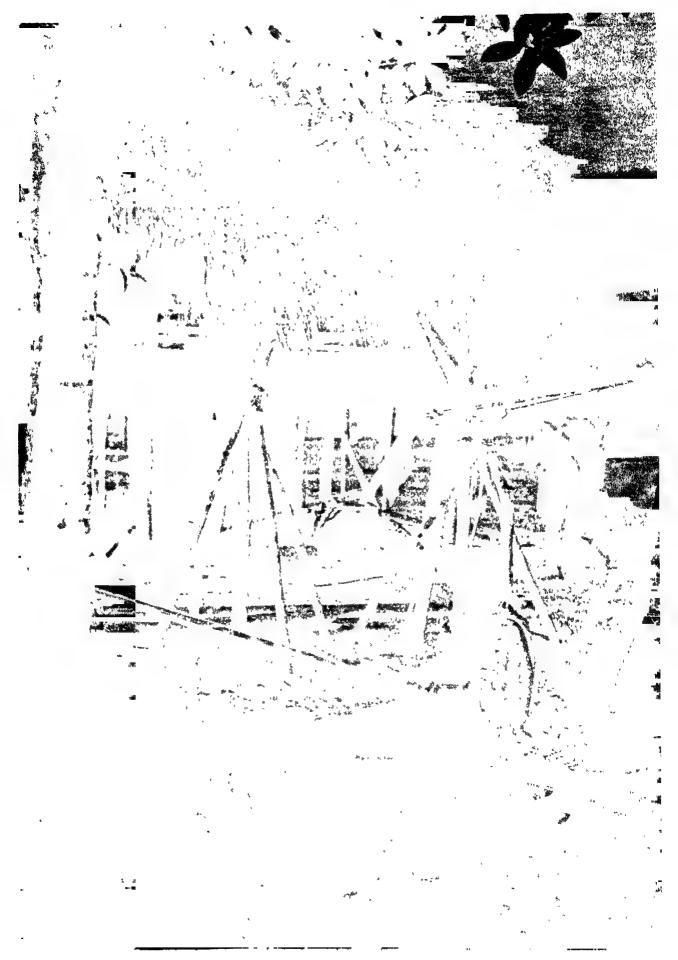
Arunachal's five districts- Kameng, Subansiri, Siang, Lohit and Tirap are inhabited by several dozen tribal communities, each with its own traditions, myths, dialects, costumes, headgear, dance and art forms. Cutting across this diversity the people share a comon desire to leap the centuries. They are not averse, either, to weave their different cultural strands into a homogenous regional fabric even as the innumerable streams of the territory go to swell the mighty Brahmaputra.

To those who live too far away to make it to the hills and tribes in this extreme north-east of India to savour

Right Above: **The profile of a Nishi farmer**
Right Below: **A pineapple market on way to Along**

> We are here faced today with unprecedented Social change. The question is not merely of fully utilising our resources, or augmenting our production but of ensuring that the benefit from these has the widest possible distribution, so that social and economic justice peaches down to the weaker sections of our Society
>
> — INDIRA GANDHI

Top left : Kongkar Loya, 23 years, of Kabu village a graduate of the J.N. College, Pasighat with his uncle Mago Loya (48 years) in their home setting.

Bottom Left : A well-to-do Adi farmer family of Daporiji in their "modern" home. Education has introduced good taste and sophisitication.

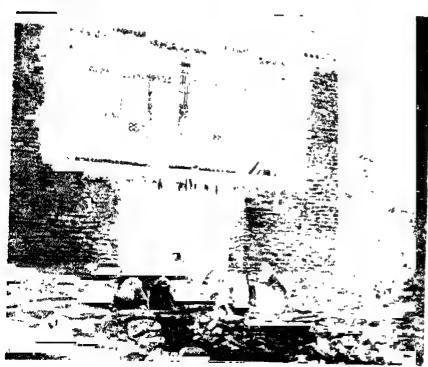
Below : Painted Bamboo container
Courtesy · Verrier Elwin

A Nishi with his bronze pipe.
He has relatives studying in the schools.

the many-hued life of these people, Yojana's camera offers vignettes of the human profile, Not all that the visiting team saw and admired could be recorded because of unpredictable weather, but what the camera was able to capture added up to an impressive total and the following photo-essay is a salute to a people who are caught up in the whirl of change and seem to relish it.

Facing Page : An Adi home in Kahu village. The girl, Miss Geyir Loya, (18 years) weaves exquisite designs. She was so shy of the camera that she had to be cajoled by her brother, Kongar Loya (Previous page) to return to he work for the benefit of Kapoor, the photographer.

Above Right . A charming Adi housewife with child. A graduate herself, she married without bride-price, and her husband is a government official.

Right: A grandmother who lives no differently from how her grandmother did, is proud of her schoolgoing grand-children.

Above and Below **The Monpas live as well-knit communities in villages. Their houses are invariably built of stone, timber and wooden planks. The women do practically all the house-hold work.**

MONPAS OF KAMENG

The Kameng frontier district, situated in the western-most part of Arunachal Pradesh provides the easiest and perhaps the most exciting introduction to the visitor. There is a beautiful, 190 kilometre road that takes you by jeep or bus from Tezpur to Bomdi La, the headquarters of the District, from where Tawang, reputed for its 350 year old Buddhist Monastry is another 8 hour run by jeep along a road that runs up and down the hills like a crazy serpent, This is the home of the Monpas, a gentle, friendly, industrious and hospitable people who follow Lamaist Buddhism. Skilled in the arts and scholastic Buddhist lore, they love religion as much as they love flowers They love ceremonials and dances. The mask dances of Tawang Lamas are colourful and even spectacular.

RICH CULTURAL HERITAGE

The Monpas, in spite of their hoary cultural tradition are poor and their life-style has a distinctiveness. The traveller can easily recognise a Monpa village by the architecture of the simple houses, built mostly in stone, matted bamboo and wooden rafters and planks. Rupa, Dirang and Sangti villages in Kameng which the Yojana team visited

Above : A Monpa home. A women sifts grain in an open yard before her home.
Below : The Monpas slel and exchange their farm produce at periodical village markets.

have not shown much change except for the new residential settlements built by the defence and border roado rganisations The stream of life flows on for the average Monpa as it has done for centuries and the little Gomphas and fluttering prayer flags continue to make eloquent announcement of the people's deeprooted faith, in Buddhist symbols of worship. Women do most of the housework, pounding corn, cooking, collecting water and fuel, washing the family linen, and caring for the children. Many families still send their children to local lamas to learn the three Rs. They are not

The Kameng District is famous for orchi which grow wild and which, when cultivate and marketed, can be a good source of ad tional income.
Although found at 5,000 ft. altitude, orchids c be grown also at lesser elevations. Arun chal alone produces as many as 350 speci of orchids.

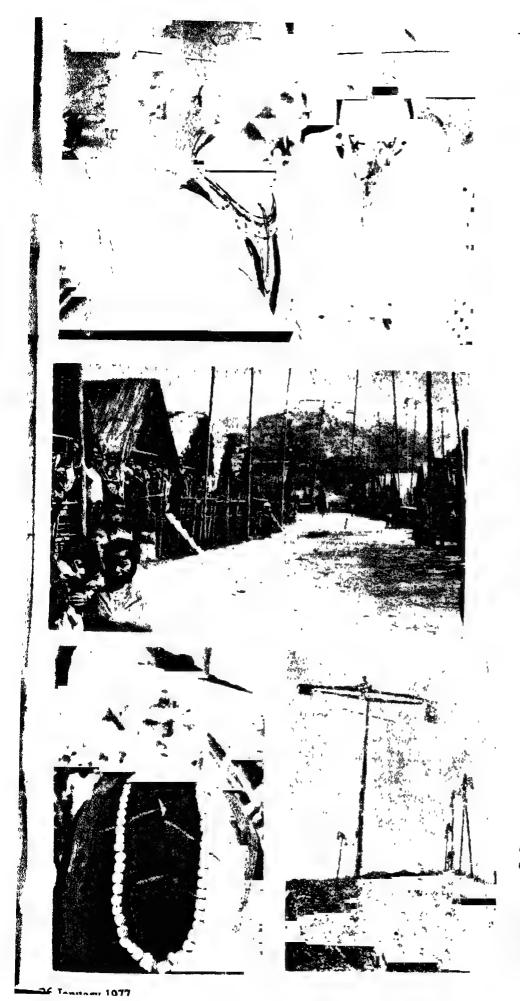
vegetarians and like all other Arunachalis, they make beer at home which is served with pride to guests Modern education has made some dent in their traditional living but except for stray personalities who have entered the professions or politics through the legislature, not much change is discernible They have miles and miles to go before they can transform their ancient villages and introduce a semblence of the habitat conecpt. This in itself may not be so important as the need to improve their agricultural and other farming practices which are bound to improve their economic status The Monpas and Sherdukpens grow maize and also eat wheat The Sherdukpens are relatively a smaller community and the present chief Minister of Arunachal belongs to it.

The Monpas are excellent weavers and they are highly skilled in the art of carpet -making. weaving is mostly women's job and the exquisite designs of Monpa carpets find a wide market oustide Arunachal

The Monpas are a well-knit community, religious, proud of their Buddhist heritage and submit themselves to the guidance of their headman

A peculier characteristic of the Monpa village which you cannot notice in other districts is the construction of what are known as manes, which is a stone wall about three to six metres long and about two metres high on which the sacred formula OM PAIN PAME HUM carved on tablets are imbedded, to ward off evil spirits.

Above A green house of orchids run by the Government in the Tipi valley which is only 800 ft. above the sea level.

Bottom A highly valued piece of silver jewellery worn by tribal women in Kameng.

APA TANIS

Perhaps the most well-kn of the tribal communitie Arunachal known to out ers are the Apa Tanis, T are distinguished from other tribes in many w their delicate features slender build being perh the most important. Ur the other tribes they have centuries been practising led cultivation on a 26 sq Km. plateau in Central ansiri at an altitude of al 1500 metres, surrounde steep mountain ridges clot in bamboo bushes and for The men and women tattoo marks on the which mark them out f other tribals. The males a cane helmet of beau workmanship and tie up t hair into a knot as the N do, with a skewer stuck t ugh it horizontally, The is tattooed with three ver strokes and they wear a g of canework with a tail, a of dress unique to them.

Equally distinctive are Apa Tani women who enormous nose-plugs w help to subdue rather enhance their natural bea The practice, though wi prevalent, is now being discarded by the you generation with the appr of the elders The Apa women wear skirts, like men folk, made of gray with bluish borders w reach upto the knee and orate themselves with of bead-necklaces.

The Apa Tani society

Top · **An Apa Tani woman with her**
Above Centre : **An Apa Tani Villag tesy : Dr. Gisela Bonn)**
Far Left : **An Apa Tani in his tra dress (Courtesy : Dr. Gisela Bonn)**
Left: **Préparations for Bobo dance a oko festival (Courtesy : Dr Gisela B**

Top Left and Bottom **An Apa Tani house**
Top . **Bobo dance in progress**

no traditional institution with centralized authority though most of the village affairs are disposed off at informal council called the Buliang. The Morom and the Mloko ceremonies connected with farming activities, are great festivals among (usually December-January and March-April) when they dance and feast

Unlike the other villages the Apa Tani village conforms to an arranged pattern, divided into quarters occupied by specific clans of the tribe. Within each village social life and inter-family activities move around the Nago and the Lapang, each of which is a focal point The Nago is a shrine and a centre of community rituals

The Apa Tanis are good cultivators and put every square inch of their farm land to an effective use. Today a great transformation is coming over the Apa Tani plateau. with demonstration farms, hospitals, schools crafts centres and an increasing number of visitors from outside the Apa Tanis have broken, their age-old isolation.

The Mishmis

The Mishmis who inhabit part of Lohit District are also migrants who came to the valley centuries ago. There are several clans among the Mishmi Tribe-the Idu Mishmis, the Digaru Mishmis and the Miju Mishmis. The clans have sub-clans which are exogamous. The Idu Mishmis cut their hair round the forehead while the others prefer to wear thin silver plates round the forehead and sport large trumpet -shaped ear ornaments.

They are short-statured and have pronounced Mongoloid features. They like strongly dyed clothes and the Mijus

Above: An Ida Mishmi woman making home-made beer.
Below: An enormous hollow trunk used by the Mishmis as a Tom-Tom drum. This drum is placed inside a *Morong* of boys' dormitory. Similar drums were also used by other tribes like the Wanchos, Noctes and Monpas.

and Digarus wear skillfully woven cane hats. Like other hill tribes they live in long bamboo houses scattered over a wide area, perhaps one reason why we do not find among them highly evolved village communities. A rich man's house can be often as long as 100 feet or more, built completely of bamboo and roofed with thatch or woven bamboo.

Like the Adi women the Mishmis too are very good weavers But they have succumbed of late to cheap bazar textiles and weaving as a craft is somewhat on the decline among these people.

A few passing glimpses of Nishi children and Gallong women. The children (*above right*) seen during an out-door drill before their school near Ziro.

The Khamtis

The Khamtis who inhabit the Lohit District live close to the Mishmis, but unlike the Mishmis they are not a hill tribe. They migrated to Assam from an area close to the source of the river Irrawaddy and settled down on the bank of the river Tangapani with the permission of the Ahom Kings. Towards the close of the 18th century in the wake of confusion and distress caused by a civil war in the Ahom kingdom, they crossed the Brahmaputra, drove away the Ahom administrator at sadiya and the Khamti chief usurped the title and the dignity of the office. Soon they were in full control of the Sadiya region. Early in the19th century, the British gave them formal recognition. After a brief spell of suspicion and open confrontation with the British culminating in eventual submission to the colonial authority, they were allowed to settle down in their occupied land,

The Khamtis are devout Buddhist and culturally have been more advanced than the hill tribes. They are very good farmers and possess a lot of enterprise. The Khamti temples are examples of wood carving and they have a rich heritage of skills in weapon making, basketry and cane craft. They love silk fabrics and they are very good at weaving

They live in houses built of stout timber frame raised on a platform and roofed with thatch.

Top · **The inside of a well-to-do Khamti home. A prosperous Khamti farmer, also engaged in trade is a leader of the community. Shri Gohain and his family enjoy the comforts of a modern home.**

Middle :**A troupe of Khamti dancers.**

Bottom : **A specimen of intricate cane basketry used on special occasions by the well-to-do Khamtis.**

Above : **Enthusiastic tribal parents bring their children for admission.**

Belwo : **The Sharada Mission School at Khonsa, built exclusively for girls. One of the best school of their kind, it provides free lodging and board facilities books and uniform.**

CHILDREN, SCHOOLS, AND THE R.K. MISSION

Where to see
Is to admire,
To admire
Is to flatter,
And to flatter
Is to amulate

"I am an Indian, India is my country.
The Indian is my brother.
The Indian is my life.
The soil of India is my highest heaven, the good of India is my good".

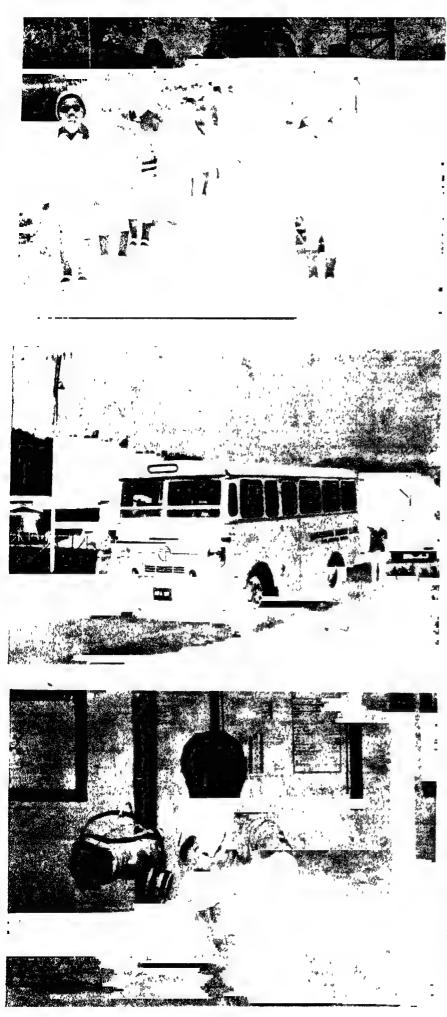
"I pledge that in all my thoughts and deeds, the safety, the honour and welfare of my country shall come first, always, every time."

This pledge, boldly painted on a board greets the visitor as he approaches the Rama krishna Mission School at Narottam Nagar near Deomali in the Tirap District of Arunachal Sentimental? Perhaps But they are not the sentiments of a chauvinist They are the corner-stones of the system of education which the two Ramakrishna mission Schools for boys and the lone but excellent Sharada Mission School at Khonsa impart to the tribal students of Arunachal Pradesh Qualitatively, these three schools stand apart from any of then kind in Arunachal or, for that matter, many parts of the country.

It was a heart-warming experience for the Yojana team to visit these institutions, meet and talk with the management teachers and witness the immaculate cleanlines, discipline and cultivated taste that permeated the entire campus In her letter to Swami Prmathananda of the Narottam Nagar School, prime Minister Indira Gandhi paid a glowing tribute to its management She wrote "What a pleasure to find the lives of the tribal boys of Arunachal Pradesh being illumined by the high and noble

Top **A dining hall in the Sharada Mission School**

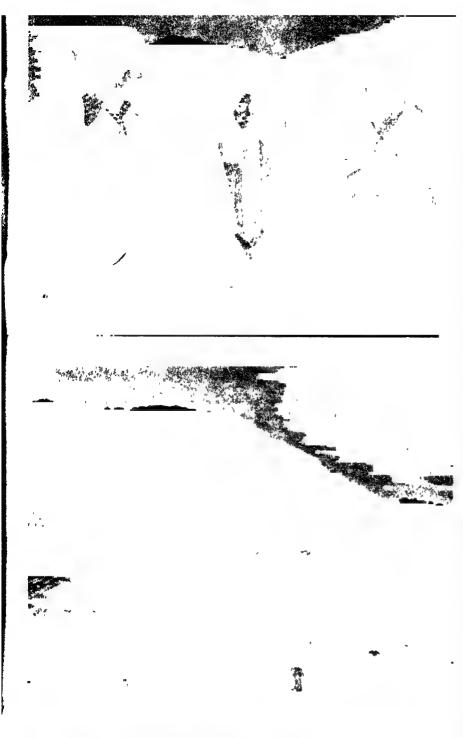
Middle · **A boys' dormitory in the R.K. Mission School, Deomali**

Bottom : **Children at plav at the R.K. Mission School, Along**

ideals of Pramahansa Ramakrishna's and Swami Vivekananda's teachings. Swami Vivekanand's ideas on education are in consonance with contemporary thinking on the subject. He also lays the greatest emphasis on the spirit of unity and of nationalism, so essential to the India of today

Having discussed, in its essentials, the basic problems of education in relation to development earlier, the only provocation to go back to the subject in this and the following pages is to pay a brief tribute to the contribution that the R K. Mission schools have been making in Arunachal to build the ethical and intellectual foundations of a new society for the tribals who are too anxious to leap the centuries.

What is distinctive about these schools is not the ideals, but the way they are woven into the general texture of management, teaching, and the entire process of learning. The visitor tends to return with unmixed admiration because they present a convincing contrast to the many thousands of schools he might have seen in the countryside and the tribal areas. These are the schools where the child, once admitted, remains until he or she completes the matriculation level. They are all residential schools and the medium of instruction is English in all classes from the preparatory to the highest class. They are affiliated to the Central Board of Education, New Delhi

For the children the day starts early with a morning congregational prayer in the large, beautiful prayerhall

Top : **Kinder-garten children on a morning drill in a Govt. Primary School, Tezu.**
Middle :**A school bus run by the R.K. Mission School. Along, for non-resident students.**
Bottom : **A tribal boy in the tenth class participating in a students science exhibition at Itanagar**

attached to the school and the day ends again with prayer. While no discrimination is encouraged between religion and religion, the pledge taken everyday by the pupils is to promote the glory of the motherland. The kitchen is common, the dining is common. There is no taboo on meat. The food, the uniform books and bed are all supplied free and any sense of discrimination among the students based on birth or wealth is automatically erased by the strict community living in the dormitories. Scout and Girl-Guide movement, sports, regular P. T. classes, manual labour in horticulture washing carpentry, cane work, clay - modelling, painting wood-carving as also music and dance lessons provide to the students a variety of hobbies and light extra-curricular activities to build up their character and prepare them in a modest way to vocational courses. There are also arrangements to give special training in scientific agriculture, poultry, smithy, cane work, tailoring, plumbing, electric-fitting, book-binding etc. which may be of practical use to them in later life.

Coming back to some of the sentiments without which an old civilization like India's can never become forward-looking, the R. K. Mission schools of Arunachal reminds the visitor of yet another saying of Vivekananda;

Let new India emerge from groves and forests, from hills and mountains.

Top : Some talented students of the Government High School, Ziro, who have participated in the production of a feature film for which the story, the dialogue, the acting and direction were contributed by the students themselves.

Middle: Elementary school children playing volley-ball at Daporijo.

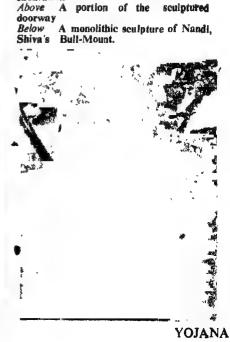
Bottom : A Monpa painting on a wooden cup.(Courtesy : Verrier Elwin).

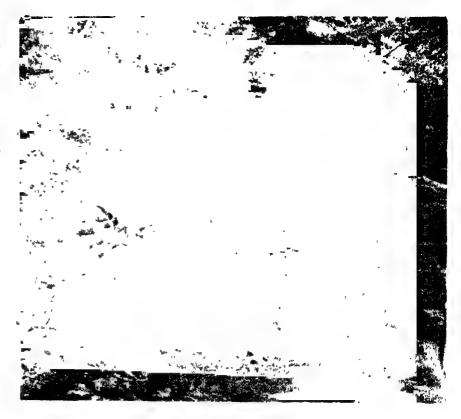
MALINITHAN

At the southern border of Siang District adjoining Assam, buried in mud and wild foliage, lie the ruins of Malinithan, only recently brought to light by the spade of the archaeologist. Situated barely 1 kilometre of Likabali, the nearest administration centre, the traveller will have little difficulty in reaching the ancient remains.

At a point where the hills descend into the plains, some seven or eight centuries ago, Malinithan flourished in its architectural glory, drawing pilgrims from many places in Assam and Bengal. Possibly, in its prime, the city with its many temples, nestled besides a river, a tributary of the Brhmaputra. Of that river no trace is left.

Like many other places of Hindu pilgrimage, Malinithan is also hallowed by tradition. The romantic legend of Krishna and Rukmini wraps the ruings Its name itself—Malinithan, is derived from this legend of Krishna After eloping with Rukmini, Krishna is believed to have come here with his bride to rest and relax. They visited the local temple dedicated to Shiva and Parvati who blessed the couple

Left An archaeologist clearing the ancient brick wall at Malinithan after excavation
Above A portion of the sculptured doorway
Below A monolithic sculpture of Nandi, Shiva's Bull-Mount.

with a gift of a divine garment or mala, Hence the name Malini and Mainithan -- the abode of Malini.

The excavation of the Malinithan site has been done in several stages and the entire temple a reawith most of its ruins has been cleared More than one hundred carved images of various deities of the Hindu pantheon, besides many beautiful carvings with bird, animal and flower motifs have been excavated and preserved on the site The investigations so far done indicate that there have been an elaborate temple complex at this place with separate shrines for the principal gods like Durga Surya, the sun god, Shiva and Kartikeya A Significant aspect of the ruins is that the temple was entirely built of stone unlike the other archaeological remains elsewhere in Arunachal Pradesh where brick was used for construction Iron dowels have also been found in the ruins excavated elsewhere in the Lohit District at the temple of Tamreshwari This and other evidences seem to prove that culturally the southern parts of Siang and Lohit Districts were a part of Assam

Above **Another view of the stone foundation of the ancient temple on which stands a newly-built temple enshrining the recovered images.**
Below · **Exquisitely sculptured images of Kartikeya and Surya.**

Some of the sculptures, particularly those of Surya, Indra, Ganesh and Kartikeya are remarkable pieces of workmanship In the absence of inscriptions which have been noticed among the ruins, it is difficult to say exactly how old those temples are. In all likelihood, they are not later than 1300 to 1350 A D. Future diggings and research should be able to expand the range of our knowledge in regard to the forgotten pages of Arunachal's ancient history.

BIHAR MARCHES AHEAD
RAPID STRIDES IN PROGRAMMES
BENEFITTING THE WEAKER SECTION

The 20-Point Programme of the Prime Minister Smt. Indira Gandhi and the 5-Point programme of the Youth Leader 'Shri Sanjay Gandhi have quickened and energised the development process in Bihar. With Dr. Jagannath Mishra at the helms of affairs, the State has made rapid strides in the implementation of the programme and people infused with a new hope and confidence look ahead for a still better future.

Salient Features of Bihar's Achievements
Are As follows :

- 2,10,000 acres of surplus land acquired till Nov. 1976.
- 1,00,000 acres of land distributed to landless people
- 17,850 acres of land restored to the Adivasis including Tana Bhagats.
- 7,32,207 parchas of homestead land distributed.
- 21,617 developed house sites allotted.
- Minimum wages at Rs 5/- per day for irrigated areas and Rs. 4.50 per day for non-irrigated areas besides one time meal costing Rs. 1/- fixed.
- amilies of bonded 5¼'43labour freed and steps for their rehabilitation taken
- Under the Special Employment Programme a total number of 740 industrial and training enterprises set up.
- Apprenticeship Scheme benefits 5,880 persons.
- 9583 Controlled Cloth Shops opened employing educated youths and others.
- 2,521 villages electrified with emphasis on Harijan Bustees.
- Book Banks opened in all Universities and prices of exercise books and Test books reduced.
- Irrigation potentional created in 93,000 hectares against the target of 87,000 hectares
- 4.75 lakhs sterlisations done against the target of 3,00,000 operations fixed for 1976-77.
- Under the Dowry Prohibition fact 125 people were arrested and 253 cases instituted during the last wedding season for accepting dowry.
- More than 1 crore trees planted throughout the State.

— Information & Public Relations Department
Bihar, Patna

ON THIS EVENTFUL DAY
IN THE LIFE OF TEAMING
MILLIONS OF INDIA
WHO CONSTITUTE
LARGEST DEMOCRATIC NATION
OF THE WORLD
LET US RIEDICATE OURSELVES
TO THE NATIONAL BUILDING TASK
UNDER THE 20-POINT ECONOMIC
PROGRAMME GIVEN BY
INSPIRING AND DYANAMIC LEADERSHIP
OF PRIME MINISTER
INDIRA GANDHI
AND PLEDGE OURSELVES ANEW
TO REALISE THE GOALS
SET BEFORE US
BY THE NATION

WE HAVE TO OUR CREDIT THE FOLLOWING MAJOR ACHIVEMENTS

** 42,000 FAMILIES OF FARM LABOUR NOW HAVE A HOUSE OF THEIR OWN
** CEILING ON LAND HOLDINGS UNDER WAY
** MORATORIUM ON RURAL INDEBTEDNESS
** MINIMUM WAGES FIXED FOR FARM LABOUR
** EQUAL WAGES FOR MEN AND WOMEN WORKERS

LET US WORK HARD TO MULTIPLY OUR GAINS
TO GUARANTEE
BETTER AND COMFORTABLE LIFE
TO OUR BRETHREN.

Issued by :
Government of Goa, Daman and Diu, Department of Information & Tourism, Panaji - Goa

To the people of Arunachal, wherever they may live and whatever tribe they might belong to, the democratic way of functioning is a part of ancient tradition The Village Council in Arunachal has various names, but notwithstanding the differences in religion or the spoken language of the people they are the repository of well established social usages and sense of justice They have preserved the high moral calibre of the common people and ensured peace and order in the tribal settlements. The introduction of the Panchayati Raj and a popular legislature in recent years has only added a new dimension to the age-old democratic traditions of the people which the government is only too anxious to preserve

PREM KHANDU THUNGON,
Chief Minister of Arunachal Pradesh

Traditional Democratic Institutions in Arunachal Pradesh

TRADITIONAL democratic institutions are an integral part of the socio-cultural heritage of the people of Arunachal Pradesh These institutions have given them a sense of democratic thinking and mature leadership If you visit an interior area, you are likely to see a *Kebang*, a village council, in session, discussing some social problem spiced with flowery rhetorics to prove a point or argue out a case

The people of this far-flung area located along India's North-Eastern border have inherited these traditions of democratic life through generations Lack of modern political education and enlightenment has kept the people of this area ignorant about democratic practices as evolved elsewhere in the country till the dawn of independence But this vast Union Territory is the abode of many tribes who may speak different dialects but who are familiar with democratic practices strongly entrenched in tradition These democratic practices have become institutionalised in the tribal sense of the term and that is how we see the various tribal councils functioning today as they have done for untold centuries all over the territory.

Dr Verrier Elwin says in his book, *Democracy in NEFA*, "All the councils have certain features in common. They all derive their authority from ancient times and the fact that they are the expression of the will and power of the whole people. They are supported not only by social, but also by supernatural sanctions and to give false evidence, for example, may call down the vengeance of the gods as well as excite the scorn of men. Sacrifices are commonly offered to avert supernatural dangers, to implore the divine blessings on the councils' deliberations, and to bring peace between the contending parties All the councils are informal in character and except for the Monpa councils and the Adi *bangos*, which seem to be more highly organised, the conception of regular membership, committees, secretaries and so on has not yet come in. The people composing the councils are the accepted leaders of a village and always include the local priest, whose services are often required, and, of course, the officially appointed headmen who are issued with red coats."

These tribal councils were responsible for ensuring respect for the socio-cultural order and discipline in the life of the communities inhabiting this area And to a considerable extent the councils afforded opportunities to the villagers to develop a sense of democratic spirit and also a sense of initiative and leadership. Those who are inspired with a sense of justice, fellow feeling and dedication were normally accepted as the leaders of the communities and they were closely associated with the councils

These tribal councils are essentially and genuinely democratic bodies as there is popular participation in it and the people in the village attend these councils either for redressal of their grievances or with positive proposals for submission to the council which deliberate at length on matters that are brought before them They are also democratic because they are based on the ideas that are democratic in spirit and function in the democratic way for the general welfare of the people in the villages

We can broadly divide the tribal councils into the following categories as they exist in Arunachal Pradesh. (1) The Monpa Mang Zomsa, (2) The Sherdukpen Jungthang (3) The Aka Melo, (4) The Bugun Council, (5) The Apa Tani Buliang, (6) The Dafla Gindungs,(7) The Kebangs of Siang, (8) The Idu Mishmi Abbala, (9) The Kaman Mishmi Pharai, (10) The Nocte Ngothun, (11) The Wangchu-Wangcha, (12) The Tangsa Councils (13) The Singpho Councils and Khampti Councils.

The continuing existence of all

these councils is testimony to the fact that the social life of the people belonging to the various tribal groups is based on traditional democratic ideals which have provided a strong foundation to the socio-political infrastructure so necessary for the democratic decentralisation as practised now in our national life

It will be relevant to indicate the structural patterns of these councils and their socio-cultural and socio-political implications. For instance, the Monpa Mang Zomsa are the councils which are well developed, self-governing institutions at the village level and have been in existence for the last thousand years From the point of view of power they exercise and the democratic nature of their functioning, this can very favourably compare with the Kebangs as they have been in existence among the Adis of Siang district. According to traditional belief, the immigrants from the plains under the Prince Rapati, came up to Tawang and were responsible for constituting themselves into a noble class almost analogous to a class of aristrocracy and were known as Khyes They long continued to be the ruling community but sometime in the eleventh century the Tawang valley was converted to Buddhism by Terthun Pemalingpa a monk from neighbouring Bhutan. This monk took the initiative to establish the northern Monpa villages and thereby he extended the influence of Buddhism in the area. As a consequence, the socio-political organisation of the Khyes who were once the rulers, crumbled, and village self-governing institutions came on the scene. The tasks that were originally entrusted to the Khyes now come to be confined to protecting the area from invasion from adjoining Tibet or Bhutan. Along with this, an institution called the *Tsobla*, an elective body, came into prominence which was subsequently substituted by local officials called *Tsorgens*. The Tsorgens were in charge of a big village or a small group of hamlets whereas the Tsobla was normally in charge of only small settlements. These Tsorgens and Tsobla, which are the traditional institutions are of great consequence in the life of these people, and they are responsible for all developmental activities being taken up for the welfare of the inhabitants of the village as well as for administering justice when disputes arise between people or communities of villagers. These institutions also contribute to a large extent towards the cultural integrity of the Monpas.

The Idus of Lohit district have an organised village council called Idu Mishmi Abbala

Among the Sherdukpens, another institution called *Sherdukpen Jungthang* has been in existence for many centuries. These councils, constituted of the *thik akhao* (the village headman) the *jung-me-barso* (the ordinary members of the council) a *kachung* or courier, and a chowkidar. These councils were responsible for deciding disputes and also taking up development works like construction of paths, bridges and buildings, fixation of dates for community hunting and fishing and celebration of festivals etc. As a matter of fact, the councils' activities were multifarious and they maintained the prestige and authority of the council in the socio-cultural life of the people.

An Adi Kebang in Siang district

Similarly, the Akas, another prominent tribal group, living in the lower belt of Kameng district have their council called *Aka Melo*. This tribal community is very conscious of the political and social influence of their political organisation. This authority has been vested in a single individual acting as the headman of the village since time immemorial. Even though the authority was vested in the village headman, the whole community could also get the authority to itself and that is precisely why the unity of political

Aka Melo in Kameng district.

organisation in Aka society is the village community as a whole and they normally functioned a as village council

Similarly, among the Buguns (Khowa), a system of political organisation of the village community started with the village as its smallest centre and the village chief as its head. Decision takes the form of public opinion and this public opinion is expressed through the proceedings of the village council and the council is also responsible for the implementation of various developmental schemes as introduced by the Government It is therefore evident that the village chief and the council exercise a political authority over the whole village community and it is somewhat like the Indian village communities where organisation of the village council and the headman exists simultaneously, both exercising a kind of dual influence on the life of the community

In the Apa Tani *Buliang* we find a council of clan representatives who manage affairs of the village These representatives are normally drawn from among the members of the wealthy clans who enjoy status and wealth. The *Buildings* are also responsible for maintenance of peace in the society and for formal treaties of friendship between the individual villages so that no incidents dislocate the normal life of the villagers. Among the Nishis we find the *Dafla Dingdungs*. Although the Nishis are highly individualistic, some sort of council exists among them. These are mostly *Mel* or tribal councils which are attended by the disputing parties in the presence of mediators and spectators They are normally held with the sole object of settling specific disputes but at the same time periodical mels are also held for discussing current affairs.

Likewise the Adis have their Kebangs The Adis of Siang district are rightly proud of their Kebangs and like other tribes, they still like to refer matters of dispute to the Kebang. Traditionally the Adis like to discuss and also to find solutions to any problem through elaborate proceedings and discussions in their Kebang. Important issues are throughly discussed and the final decision taken there is legally binding on all The Kebang is the village institution and has evolved from the deeply felt democratic feelings of the people and their zeal for the consensus. A self-regulating socio-political organisation with a three-tier system of democratic constitution as they are, the Kebangs direct all village activities in accordance with the traditional laws and customs. The Kebang directs and also watches over the welfare and wellbeing of the village community. It is in fact a forum where all matters of common interest are discussed and without its sanction nothing can be done. For instance, opening of agricultural plots, building a new house, roads, punishing the wrong doers and other matters that are of concern to the people in general come to the Kebang for decision. It is also a sort of a judicial body on the pattern of a court of justice. A Kebang has jurisdiction over its own village. Inter-village disputes are settled by the inter-village councils which are known as Bangos. Then again inter village disputes are settled by by a superior body called *bogum bokang* which is a temporary council formed by all the Bangos of the same tribe and is composed of influential elders having no personal interest in the disputes. Among other communities like the Mishmis, Noctes and Wangcho in Lohit and Tirap district respectively village councils with the same socio-political structure are still in existence. These village councils are not merely traditional judical bodies but they are also socio-political and socio-cultural democratic organisations. They have direct influence on the socio-cultural and socio-economic life of the communities.

These village organisations, well organised as they are, have a solid contribution to make towards regulating the life of the villages. It is precisely because of this that the government has always taken care to see that the customary laws of the people are always taken into consideration while deciding judicial cases at the village level or the community level In fact a special provision known as the 'Administration of Justice Regulation, 1945' had to be introduced with the object of ensuring that a vast majority of disputes both civil and criminal, may be settled in accordance with prevailing traditional codes of the tribal communities

These village organisations have been in existence since time immemorial They are the product of organised village life Since they are well organised on the lines of democratic tradition and ideas familiar to us, the modern Panchayati Raj system is not found alien to the traditional socio-cultural and socio-political life of the people of Arunachal Pradesh When the Panchayati Raj regulation was introduced in 1967 in what was then known as NEFA, the system never appeared to conflict with the temperament or traditions of the people. The people by and large responded favourably to the introduction of a new system based on universal adult franchise It is therefore no exaggeration to say that the traditional democratic institutions of the people of Arunachal provided a ready-made socio- political infrastructure on which the present day popular democracy can be sustained. It would be quite in order to say

[*Turn to next Page*.. .]

Rich Literature

A rich and varied literature based on modern scholarship exists on various aspects of life in Arunachal Pradesh, brought out by the Research Department. The Department also published a quarterly bulletin, *Resarun*. Given below is a list of English books published by the Research Department!

The Sherdukpens by R R P Sharma
The Idu Mishmis by T.K M Baruah
Nagaland by Verrier Elwin
The Art of the North-West Frontier of India by Verrier Elwin
The Tangsas by P C Dutta
The Daflas by B K Shukla
Aspects of Padam-Miyong Culture by Sachin Roy
Games of NEFA by Marion Pugh
Nocte Ce by the Philological Section of the Research Deptt
A Philosophy of NEFA by Verrier Elwin
Myths of the North-East Frontier of India by Verrier Elwin
The Gallongs by L R N Srivastava
The Akas by R.P Sinha
A Dictionary of the Taraon Language by the Philological Section
A Phrase Book of Idu by the Philological Section
Democracy in NEFA by Verrier Elwin
Constitutional and Administrative Growth in NEFA by P N Luthra
A Comparative Study of Adi Religion by J.N Chowdhury
Myths of the Shimongs of Upper Siang by T.K Bhattacharjee
A New Book of Tribal Fiction by Verrier Elwin
Moshup Abang by B S Guha
Anthropometry of the Adis by Sachin Roy
The Hill Miris of Subansiri by J.N Chowdhury
Solung, a Festival of the Adis by P C Dutta
Among the Wanchos by L R N Srivastava
Glimpses of the Early History of Arunachal by L N Chakravarty
An Introduction of the Gallong Language by K Das Gupta
Apatani Language Guide by I M Simon
An Introduction to Nocte Lang by K Das Gupta
Aka Language Guide by Simon
Social Organisation of the Miyongs by L R.N. Srivastava
Miji Language Guide by I M Simon
Hill Miri Language Guide by I M Simon
Phrase Book of Miju by K Das Gupta
Miju Dictionary by A Boro
Noctes by P C Dutta
Mishmis of Lohit Valley by S K Kalra
The Singphos and Their Religion by T K M Baruah
The Boris by K Kumar
The Pailibos by K Kumar
The Hill Miris by B B Pande
Milang Language Guide by A Tayeng
Moklum Language Guide by T Ngemu
Idu Language Guide by J Pulu
Lik-pu-can-han by T.K.M Baruah
A Catalogue of Basketry by A K Das

RACIAL ETHNOLOGY

"The tribes living in the hills of the north-eastern frontiers of Assam represent a separate type with a head shape either wholly or with a tendency to be dolichocephalic, the transverse diameter being narrower, and the occiput protruding somewhat In the flatness of the nose, face, high cheek bones, oblique slit eyes and absence of hair on the face and the body, they are however essentially Mongoloid (the dolichocephalic Mongoloid type), and must be regarded as a different branch of that great race which entered from south-western China, and whose main body moved away towards the Indonesian islands through Burma and the Malay Peninsula leaving a sidestream in the Assam Hills, such as that represented by the Miri, Bodo and the Naga tribes, and underlies the population of the Assam valley in general . .

"It is in all probability likely that they are a branch of that great race which entered from south-western China, and whose main body moved away towards the Indonesian islands through Burma and Malay Peninsula "

B.S. Guha
An Outline of the Racial Ethnology of India

that the Panchayati Raj system has come to play its role in this strategic area and has laid the foundation of democratic decentralisation with direct participation of the local people in the affairs of the local Government as the promulgation of the North East Frontier Agency Panchayati Raj Regulation of 1967 actually laid the foundation of an indigenous representative Government in the Territory The structure has three tiers, namely:—

(a) Anchal Samitis covering the blocks. For this purpose some 39 blocks have been carved which are coterminus with the Community Development Blocks
(b) Zilla Parishad, which will operate at the district level and there will be five of them
(c) The Agency Council at the level of the administration which will sit with the Head of the Administration, namely the Governor, as Chairman.

The implementation of the Panchayati Raj Regulation, 1967 is the first step for democratisation of power and in a sense it provides a landmark in the constitutional evolution of Arunachal Pradesh. This particular step has accelerated the constitutional growth of the area towards the formation of a popular representative Government. Along with this accelerated political growth the area has also witnessed a fast changing administrative pattern resulting in the inauguration of the Union Territory in 1972 which has an obvious impact on the political growth of the region.

The Prime Minister, Smt. Indira Gandhi formally inaugurated the Union Territory on January 21, 1972 and hoped that this major administrative action would accelerate the socio-economic and socio-political growth of this Union Territory As a matter of fact, the years that followed have seen an unprecedented growth resulting in the formation of a popular Government in 1975 with the passing of the Union Territory (Amendment) Act granting a fullfledged Legislature and a Council of Ministers.□

THE vast potential of Arunachal is locked up in its hilly terrain, one of the most difficult in the country to open up. But open up we should because the country stands to benefit from every rupee of investment. This investment has first to be on roads, however, expensive it may seem for the moment. Every development activity here hinges on the transport problem and the planner has to determine priorities on the basis of norms drawn up for the special requirements of an unusually difficult terrain, says

DR. (MRS) INDERJIT KAUR BARTHAKUR

Roads, Key to Development

LIFE IN THE hills is difficult So is the construction of hill roads Their cost is relatively high and the hills do not and cannot support dense populations The hills constitute approximately one-sixth of the country's land area Their economy is both primitive and weak In the absence of roads and any other means of transport in the hills, people draw on the natural fertility of the land for all their needs Inputs are mainly in the form of locally available labour and skills There is heavy dependence on the forests. Production is mainly for the self-sufficiency of the inhabitants. Savings are meagre to nil Marketable surpluses are few and limited to a few areas where road links exist There are no markets worth the name beyond the road heads No large scale industries can operate

In short, in the absence of roads and other transport facilities, in the hills, the economies of the hill areas are condemned to remain backward, under-developed and continue to be poor and non-generative These isolated areas are mainly inhabited by people who have been recognised by the Constitution of the country as poor and under-developed, and scheduled for special assistance and care. Many of these have been classified as Scheduled Tribes. Characteristically the villages in the hills are very small This is an indication of their economic condition, as the sparsely populated hills, unaided by planned development, can support small villages only

Dr (Mrs) Barthakur is Head, Directorate of Economics and Statistics, Government of Arunachal Pradesh.

Potential

Yet, paradoxically, the poor people of the hills possess the promise of rich potential resources The mountains feed perennial water sources which irrigate the lands of the plains The hill streams and rivers have a high hydel power potential. The erstwhile CWPC estimated hydel potential of Arunachal Pradesh alone at 20,000 megawatts The North Eastern Region of the country as a whole has the potential to meet almost half of the total power requirement of the country if fed into a national grid. This could contribute substantially in meeting the power hunger of many States of the country It would provide one of the main resources for hill States or Union Territories which are at present gravely deficient. If it could be harnessed for cheap and simple heating by the application of appropriate technology to remote village conditions, it would also ease the demand on the forests. People in the hills have to keep warm and unless a practical alternative is provided, trees will continue to be cut for firewood with resultant dangers to the ecology

A view of the Serpentine road that links the hills in Arunachal Pradesh

Mineral exploration in most of the hill areas is in its infancy but resources are expected to be plentiful. Many of the foothills have deposits of oil, which are still to be investigated. Forest wealth abounds and under proper management can yield rich dividends. Forests already contribute about Rupees two crores annually to the resources of the young State of Arunachal Pradesh These potentials of the hills have not yet been fully harnessed to the growing needs of our growing population. The intrinsic quality of the hillman, who, unaided, has survived over centuries in the face of natural hazards and calamities is itself a rich human potential. Centuries of traversing steep, narrow and primitive paths, seems to have equipped him with a special equilibrium of mind and a precision uncommon to the people of safer and easier areas This adaptive balance of the hillman could itself be an asset and used with advantage for precision work on electronic goods, watches and other delicate instruments especially as climatic conditions most conducive to such work are also readily available in the hills. The distinctive climate itself is an asset if used to the advantage of man for production of specialist crops including cash crops, capable of earning valuable foreign exchange The hills can provide a variety of attractions to all categories of tourists

All this potential has to be converted into reality The country has recognised this and made promises Our Constitution offers many concessions for the Scheduled Tribes An accelerated development rate is sought to be provided to such areas under the classification of (a) Scheduled Tribes sub-plans (b) Backward area considerations (c) Difficult area benefits (d) Balanced growth principles which focus attention on areas which are behind the beat and rhythm of the country's development (e) International border area development (f) Hill area development

Incidentally, areas which qualify on all the above mentioned special considerations also attract almost all the thrusts of 20 point economic programme. The under-development of these areas is so acute that the "minimum needs programme" of the developed parts of the country constitutes a dream —a far cry and perhaps beyond the "maximum" programmes, capable of implementation through the plan grants. In spite of these special considerations, why do these areas continue to be so comparatively under-developed? What is it that keeps them chained to primitiveness?

When it comes to building roads, the whole village displays the spirt of Shramdan

It is time to delve into the causes and recognise the pivotal center of development which alone can remedy the situation

It has been argued that villages in the hills are small and the population density per sq km so low as to render investment unremunerative But this is a dictate of the environment. High lands offer low returns As things are at present, there are no alternatives, and no savings Many of the modern inputs cannot be applied in such a terrain almost entirely because of the constraints of communications in hill areas unlinked and unfed by roads, or other efficient means of transport

One could count one by one many factors, responsible for low developments in the hills, but the cardinal factor which dominates and influences almost all other discernable causes of low development is the absence of an adequate road network and transport system The hills do not and cannot have other alternative means of transport. The ancient bullock cart (which in the plains carries in its totality a heavier load than the trains), the rickshaws, the 'Thelas', the Railways, trams and river navigation, all of these are hardly relevant in the hills except in limited local pockets Road and ropeways have to carry all loads and traffic in the hills, apart from the minor contribution of pony trains Moreover, the hill roads, because of their winding alignments, have to cover twice the distance of roads in the plains to serve an equal economic need. Therefore, the hills in theory should have twice the road density of the plains to be compared to the road systems in the plains To provide an efficient communication system in the hills especially during transitional development, ropeways and pony services and small air strips may have to be pressed into service to supplement the meagre road network in the hills But whatever we may say and whatever we may plan, nothing will ultimately create general economic viability until an efficient road network opens up the hills to economic ventures. Road specifications also have to be adequate for transport costs to be brought down to a viable level in aid of production and economic movement of goods and services

The Union Minister of Transport and Communications, Shri G.S Dhillon in his speech on 23rd November, 1976 at the Hill Area Development Seminar held at Shillong stated that the hills have only achieved a road density of 14 1 km (1975) for 100 sq km of area as against 36 1 km (1972)for the country as a whole When the density of roads for the country is adjusted with the hill area weightage for 1975, the disparity with the plains areas becomes even greater. The latter should then be projected at 40 km per 100 sq km to achieve a proper comparison As already explained, the corresponding road density for the hills ought to have been double this i.e. over 80 km of road length for 100 sq km of area. However, even

this road density would not have cancelled out the handicap of the inevitable absence of alternative means of transport like the bullock cart, railway etc. Obvious geographical and historical constraints hindered development in the hills and kept the road density as low as 14 km. However, the fact remains that it is unacceptably low, and must be corrected if stagnation and backwardness is not to be perpetuated indefinitely and other developmental efforts rendered infructuous or unremunerative.

Judging from the speed of development in other developed and fast developing regions of the country, it can be said with certainty that the development lag between the hills and the plains will actually widen unless corrective measures are meantime taken to enhance the growth rate in the hills. It is expected that by the end of the Sixth Five Year Plan, the plains are likely to achieve a road density of around 50 km per 100 sq km of area. Comparable to this, the hills ought to have by that date a road density of about 100 km per 100 sq km of area even though a case for a still higher road density could easily be presented.

It must be accepted, that the terrain in the hills is difficult, and road building is costly and takes time. But to catch up with the country's overall advance in the sphere of roads alone, and providing for double its roads density in the hills, very heavy investment would be needed which at this stage will obviously be unavailable. Therefore, road density for the hills may be fixed at a modest target of 30 km per 100 sq km of area. It would, however, be necessary to specify a date to achieve this target. The target of 30 km of road density for 100 sq km of area would be only one-third of the road efficiency of the country in the plains, and it seems essential therefore to specify the end of the Sixth Five Year Plan as a date not too late to achieve the norm of 30 km per 100 sq km.

Once the target and the date is fixed, it would be necessary to identify areawise allocations as per the relative needs and deficiency of each hill territory.

Existing road densities for different hill units differ. In certain hill areas like Arunachal Pradesh, it is as low as 5.6 km for 100 sq km of the area. In the absence of any other means of transport 5.6 km of road for a 100 sq km of areas is totally inadequate. Such infant territories need special care and treatment. Even within each hill area, there will be certain pattern regions which can be permitted initially for coverage in order to boost up coverage in more fertile and densely populated pockets suitable for cash crops or the extraction of other industrial resources.

Even so, and with this limited target of 30 km per 100 sq km of area by the end of Sixth Five Year Plan, a very massive investment would be required. In the case of the most backward area in the country, Arunachal Pradesh, this might work out at over Rs 1000 crore! However impractical this might seem, the fact must be faced that unless over-riding priority in investments under plan schemes in such areas is given to the development of communications (at its formative stage Himachal Pradesh devoted one-third of its total allocations to this sector) all other meaningful development schemes will founder or falter. Deeper thought and time bound programmes to meet the situation are therefore urgently necessary. □

Oil Exploration in Arunachal Pradesh

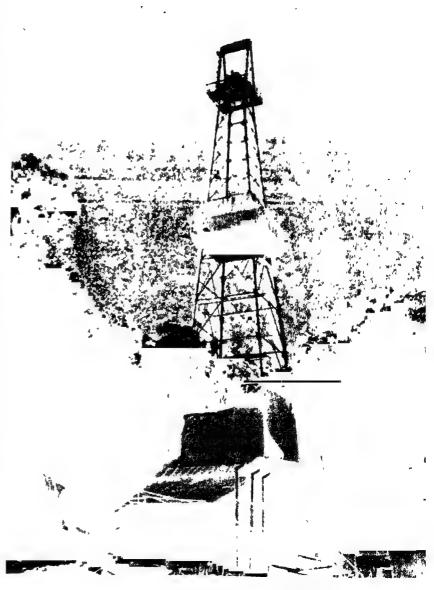
Drilling for oil in Arunachal Pradesh is still in the exploratory stage Though the seismic surveys conducted so far in the Ningru plains have shown the presence of a few structures at depths and the well evidence from drilling so far shows high abnormal formation pressure, the hazards arising from the unusual nature of the terrain and climatic condi tions are numerous and make the effort expen sive Indian technicians have been masterin those difficulties and the future prospects ar dependent on our capacity to invest bot money and skills

THE NINGRU PETROLEUM Exploration Licence (PEL) area of Oil India Limited (OIL) is situated in Arunachal Pradesh in the extreme north-eastern corner of India Out of the total 1541.044 sq kilometres originally granted in 1963, the Company presently retains about 552 sq kilometres, the rest have been relinquished as per the concession rules The area is generally thickly forested, and comprises both plain country criss-crossed by several rivers and streams and with hills rising upto 1000 metres above sea level Some of the rivers in this area are very turbulent, and are susceptible to high floods during the monsoon and unpredictable flash floods at other times

The most prominent geographic features are (a) the NNW-SSE tending Manabum range which lies on the eastern part of the area and (b) the Noa Dihing river which cuts the area diagonally Apart from the Noa Dihing river which is a major drainage feature, there are many hill streams which cannot be crossed at all when in flood Due to its close proximity to the hilly region the Noa Dihing discharges high volume of water at great velocity. The presence of large boulders and floating timbers in the river flow makes it unfordable except for a few dry months during winter

Oil-Bearing Structures

The Ningru area had attracted the attention of explorationists in the past on account of several oil shows in the hilly region lying to the south of the Noa Dihing A few shallow wells were drilled prior to 1940 near the oil shows, but were later abandoned as no hydro-carbon accumulation of commercial interest was discovered.

Based on note received from Oil India Ltd

An oil drilling well in Arunachal Pradesh

After obtaining PEL coverage over the area, OIL reviewed the past evidence and carried out fresh geological and geophysical surveys From the information thus gathered, OIL considered that there could be oil/gas prospects in several types c structures present in the area. Th type of structures could broadly b defined as .

(i) the large Manabum structur delineated mainly on th

basis of surface geological work;

(ii) the fairly big sub-alluvial structure at Kumchai delineated on the basis of seismic data; and

(iii) several small structures in the hilly region to the south of the Noa Dihing indicated by surface geological information and limited amount of seismic data.

While a discovery in any of the large structures has obvious economic attraction, it is also evident that, depending upon the depth of the productive strata, even smaller structures could be attractive, particularly if several of these are found in close proximity. The planning objective was to drill a number of key exploration wells to test these possibilities.

Exploration So Far

While geological and geophysical surveys were carried out on both sides of the Noa Dihing, the first phase of drilling was undertaken on the smaller structures to the south of the river This resulted in a shallow oil discovery in an area of Kharsang. Drilling activities were then extended to the north of Noa Dihing, and the first well on this side is currently drilling on the large Manabum structure.

Geological mapping of the exposed structures in the Ningru area was done earlier. Some of the critical areas were further mapped in detail after the grant of the PEL to OIL A seismic survey was also carried out in the Ningru plains in 1964-65 and a total of 497.287 line km were surveyed. Interpretation of these data showed the presence of a few structures at depths.

The seismic survey carried out in the plains could not be extended to the Manabum hills because of the extremely rugged terrain. A gravity-cum-magnetic survey was carried out over the entire Ningru PEL area during 1972-74 for obtaining sub-surface structural information. A total of 1176 gravity/magnetic stations were covered in these surveys which gave valuable sub-surface structural information.

Four exploratory wells have been so far drilled and the fifth well is being drilled. Three exploratory wells have been abandoned. The information gathered from these wells may be summarised thus:

Area	*Well No.*	*Meterage Drilled*	*Present Status*	*Remarks*
Kharsang	1	2237	Abandoned	Drilling terminated with pipe stuck at bottom after encountering abnormal formation pressure. Presence of oil/gas at shallow depths was proved by testing a few ranges. The well was abandoned since the accumulations were found to be non-commercial.
Kharsang	2	3614	Abandoned	Drilled through over 1500 m of abnormal pressure formations. Tested three ranges below 2885 m. Presence of oil/gas in deeper strata was proved, but the accumulations were found to be non-commercial, and the well abandoned. A few prospective ranges at shallow depths could not be tested owing to operational difficulties
Kharsang	3	1272	Oil well	Several shallow ranges showed indication of presence of oil. One sand range produced oil at the rate of about 60 kilolitres per day.
Shongking	1	1520	Abandoned	Very poor hydrocarbon prospects.
Manabum	1	3829	Drilling	Practically no hydrocarbon indication obtained so far.

FUTURE PLAN OF OIL IN NINGRU

Type of Well	*Structure*	*Well No.*	*Meterage*	*Remarks*
Deep	(Manabum	1	4500	Presently drilling
	(Manabum	2	4500	—
	(Kumchai	1	4200+)	The prospective ranges could be at a greater depth; these wells may have to be deeper.
	(Kumachai	2	4500+)	
Shallow	(Kharsang	4	1500)	Outstep wells to investigate the extent of the shallow oil accumulations discovered in Kharsang 3.
	(Kharsang	5	1500)	
	(Kharsang	6	1500)	
	(Kharsang	7	1500)	

What floods can do to undo what Oil India does

In undertaking this programme of drilling, the transportation of heavy oilfield equipment from Duliajan base to the drilling locations in Ningru PEL posed a major problem. The existing road system in Assam and Arunachal Pradesh (beyond the last rail head at Lekhapani) was found to be totally inadequate. Large sections of forest roads and the timber bridges on two hilly rivers (viz. Namphuk and Namchik) were incpable of withstanding oilfield traffic. The first task before OIL was to upgrade the infra road structure of the region The work was taken up in two phases to synchronise with the projected drilling programme Broadly speaking, the following major civil engineering tasks were undertaken, which are far beyond the scope of the normal activities undertaken in an oilfield and which involved a substantial outlay

Phase I (For drilling on the south side of Noa Dihing).

(i) regrade about 30 km of existing gravelled road,
(ii) improve the cross drainage under the forest roads,
(iii) provide new bridges capable of withstanding heavy oilfield traffic on Namphuk and Namchik rivers, and
(iv) construct long stretches of new approach roads to drilling well sites

Phase II (For drilling on the north side of Noa Dihing):

(i) provide Bailey bridges over three sub-streams of river Noa Dihing to enable the heavy oilfield vehicles to ford the river during winter months,
(ii) provide a 600 m long aerial ropeway across Noa Dihing to facilitate transportation of men and light materials throughout the year, and
(iii) construct long stretches of new roads to drilling well sites in hilly terrain

A view of the ropeway (600 metres) specially built by Oil India to transport men and materials across the river Noa-Dihing during the rainy season.

Future Programme

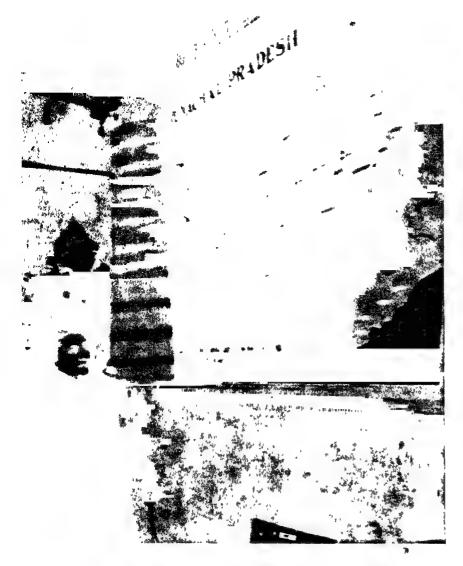
Apart from the discovery of at shallow depths in the Khar structure, the limited amount drilling so far carried out indic considerable geological comple. To resolve these, intensive geol cal/geophysical investigations be required.

OIL is about to procure a hi sophisticated digital equipment seismic surveys. From 1977 wards, it is proposed to carry high resolution seismic surveys pe dically in selected areas of Ningru PEL using the digital cording system. The possib of carrying out a high resolu aeromagnetic survey in the i future is also being looked into

Additionally, the well evide from drilling so far done sh very high abnormal formation p sure with concomitant com drilling problems Under tl circumstances it is difficult to ass a time dimension to the future d ing programme For example, w drilling of a 3100 m deep well Nahorkatiya/Moran areas takes, the average, about four to five we drilling of Khersang 2 (total de 3614 m) took 90 weeks. As a of its future plan, OIL propose drill the following wells in Nin PEL upto 1980 (*See earlier page*)

Ability of Indian Technicians

In the light of the experience ga over the past decade there is e reason to believe that Indian tec cians will be able to successf cope with the several problems exploration that still lie ahead this geologically and topographic difficult area.

The wells listed above are exp ed to provide a reasonable idea ab the hydrocarbon prospects of Ningru PEL. The programme head envisages continuing drill in Ningru till 1980. Further w will have to depend naturally on sults achieved.

The North Eastern Council

Its Scope and Functions

HAVE ALWAYS been interested in hill and tribal peoples and am specially ıwn towards North East India, ;ause of its natural beauty, its ersity and the complex challenges ıt it presents I have sympathy ' Assam, which, although rich culturally, is economically backward because of lack of opportunities

The other political units of this region also suffer from similar backwardness Of course, this is not unique to this region Many parts of the country including a large portion of my own State--the hill areas and the eastern districts of Uttar Pradesh—are also economically undeveloped In addition to the economic and social problems, the North-Eastern Region is important to the country because of its strategic situation The strength and development of this area are of utmost importance to the whole nation

The various political parts of this region are bound by several common characteristics Their people share a variety and picturesqueness of dress and custom that is rarely equalled If they have the good fortune to live in the midst of green and lush surroundings, nature also visis them with many hardships like torrential rains, floods and landslides The very terrain presents formidable obstacles to communication Roads and bridges are needed to connect one point with another and to serve the region as a whole. Rivers remain to be harnessed for common advantage. The resources of the forests and the wealth hidden in the soil must be utilized for the welfare of all.

The primary purpose of this Council is the development of the region for greater human welfare. The first principle of development is coordinated activity. I have no doubt that the different units of this region will gain by such coordinated work Today even sovereign Governments co-operate in matters such as trade, utilization of river systems and water resources for irrigation and power, the building of highways and railways, and the utilization of mineral resources Such co-operation does not in any way lessen the authority of individual Governments.

As the North-Eastern Council is meeting for the first time, I should like to take this opportunity to remove some misconceptions regarding the scope and functioning of this Council This is an organisation of the various political units of this region, set up under an Act of Parliament, to formulate a co-ordinated plan for development and welfare. It is not a super Government It does not abridge the power of the States and the Union Territories in any manner whatsoever It is not an extension of the Union Government It is an advisory and not a supervisory body. It does not alter the relationship of the member units with the Central Government The Central Government will not use the Council to interfere with the affairs and functioning of the various Governments of this region I share the hope expressed by the Governor, Shri B K Nehru that the Council will gradually grow into an effective co-ordinating agency for the solving of regional problems in an atmosphere of goodwill, responsibility and mutual respect.

I should like the Council to draw up projects which will benefit more than one unit and which can be implemented, or at least started within the remaining period of the Fourth Five-Year Plan. There are sectors such as transport and communications, power marketing, institutional financing, training, preparation of feasibility studies for industries etc. in which a regional approach would be most welcome Vision and practicability are the two

Extracts from the speech of Prime Minister Indira Gandhi while inaugurating the North-Eastern Council on November 7, 1972.

Basic Facts About Arunachal Pradesh

Area 84,000 square kilometres.
Total Population 467,000
Male population 251,000
Female population 216,000
Scheduled Caste population 339
Scheduled Tribe population 369,000.
Villages 2,973.
Towns 4.
Density of population 6 per sq km.
Sex ratio (females per 1,000 males) 861
Total workers population 269,000
Cultivators 211,000
Agricultural labourers 5,000
Other workers 53,000
Non-workers 198,000
Administrative subdivisions 26.
Administrative circles 82.
Length of roads 3,331 km.
Post Offices with telegraph facility 21.
Post Offices without telegraph facility 84.
Electricity installed capacity 2,427 kW.
Places electrified 65
District Hospitals 7.
Dispensaries & Health Units 87
Medical Teams 20.
TB Hospital 1.
HD Sanatorium 4
Ayurvedic Dispensaries 1
Number of doctors 158
Nursing staff 31
Auxiliary nurses 101
General beds in hospitals 778
TB beds 182
Hansen disease beds 272
Literacy 11.29 per cent
General educational institutions 751
College 1
Higher secondary schools 25
Middle schools 88
Junior Basic/Primary schools 622
Pre-primary schools 15
Number of students 43,000
Technical training institutions 4
Land developed under permanent cultivation 2,637 hectare
Agricultural farms 10
Horticultural nurseries 278
Area irrigated by channels 5,831 hectares
Area irrigated by other sources 300 hectares
Villages provided with water supply 818
Cattle farms 8
Goat farms 2
Veterinary aid centres 47
Veterinary dispensaries 51
Mobile vet dispensaries 5
Fodder farms 5
Fish farms 29
Village fish ponds 1,956
Area under pisciculture 134 hectares
Total area under forests 51,540 sq km
Reserved forests 7,260 sq km.
Unclassed or undemarcated forests 44,280 sq km.
Forest revenue in 1974-75 Rs 17,044,000
Legislative Assembly 1
Zilla Parishad 5
Anchal Samitis 44
Gram Panchayats 623
Community Development Blocks 43
Cooperative societies 110
Craft centres 19
Annual outturn of craft centres Rs 1,192,000
Sericulture demonstration centres 12
Weaving units 12
Medium industries 1
Village and small scale indusries 63
Rural industries project 2
Community radio listening sets 1,491
Number of bank branches 9
Bank deposits during 1974-75 Rs 13,672,000
Bank advances in 1974-75 Rs 1,227,000
Social and cultural organisations 47
Books in libraries 100,000
Total number of government employees 12,137
Budget estimate for 1976-77 Rs 305,800,000.

Source · Directorate of Economics and Statistics, Government of Arunachal Pradesh.

key tests of good planning. I should like to assure you that the suggestions made by the Council and the projects drawn up by it will be considered with particular attention by the Planning Commission and also the various Ministries of the Government of India

You will be glad to learn that the Government of India can make available to this Council a sum upto Rs. 50 crores during the remaining period of the Fourth Plan for such regional projects as it might draw up. These funds will be over and above the funds that the States and Union Territories will receive under their own Plans.

Such special allocation for the development of this special region will also continue in the Fifth Five-Year Plan.

The implementation of these projects and schemes will be the charge of the respective Governments and their agencies. This might entail the strengthening of their existing administrative and executive machinery. It is important that each of the North Eastern States builds up expertise in the matter of data collection, project preparation and construction and administration.

Forestry In Arunachal Pradesh

E. S. THANGAM

A bout eighty per cent of the State revenue in Arunachal Pradesh comes from its rich forests which cover sixtytwo r cent of the total area. The divergence altitudinal and climatic conditions has oduced a wide variety of trees and floral alth ranging from the tropical rain to the pine species, not to mention important rest products like the bamboo and the ne and a wide range of medicinal plants cause of its difficult terrain, heavy rainfall d its innumerable rivers which get flood during the rainy season, paucity of transport facilities poses a serious problem not only to forestry development but also to the exploitation of its mineral and agricultural resources. The Government's strategy is to develop the forest wealth so as to preserve the ecology of the area and exploit potential resources in a planned and scientific manner

Mr Thangam, the Chief Conservator of Forests, Arunachal Pradesh, presents below an overall picture of the forest resources and efforts being made to exploit them

FORESTRY HAS a major role to play in Arunachal Pradesh unlike other states, nly because it is a hill state re most of the people still cone to live in the forests Being nly of tribal origin, these people not seen much of civilisation continue to live in their own itional ways due to lack of conwith outsiders. As a result, the sts continue to be the warp woof of their life-web for generas. Century after century, they been living like this and even modern atomic age has not been to make any perceptible dent in r activities.

runachal Pradesh is the largest in the North-Eastern Region of country It lies between 26° 30' 29°.28' North latitudes and 5' and 97°.24' East longitudes. five administrative districts Kameng, Subansiri, Siang, it and Tirap covering a total of 83,578 sq. km. are located ely in hilly and mountainous in and enclose the Brahmaputra ey like a broken horse-shoe. the northern and eastern sides, uches the international boundaof China and Burma, on the h it borders Assam and Nagaand on the extreme west, tan. The population is barely lakh (1971 census) consisting ly of local tribal people.

ut of the total geographical area 83,578 sq. km. the Reserved Forests occupy 7,257 sq km. (9%) only and the village forests occupy 44,284 sq. km (53%)

The annual rainfall varies from 1000mm. to 6500 mm and the humidity, even during winter months is high The altitudinal variation ranges from 170 m to 8000 m, rising from the banks of the Brahmaputra river to the snowy Himalayan peaks. These have given rise to such divergence of climatic conditions that we find a wide spectrum of vegetation ranging from the tropical to the alpine types.

Because of its rich and varied altitudinal and climatic conditions, several of the forest types of our country viz the tropical rain forests, the semi-evergreen forests, the subtropical forests, the temperate forests the sub-alpine forests and the alpine forests occur. The important timber species that occur in the lower elevations are hollock, hollong, mekai, bola, khokon, nahar, duna, chaplash and champak. In the higher altitudes, blue pine, fir and other pines occur with oaks and other species Among the minor forest produce, bamboos and canes are important. Certain medicinal plants like coptis teeta are also collected.

At present there are four plywood mills, one at Namsai, another at Jairampur and two more at Deomali. There are about six saw mills in the State.

A great diversity in wildlife is found in this State due to dense vegetation, abundance of fodder and fruit plants and a wide range of climatic and geographical conditions. The inner-line restrictinos have also helped to protect the wild life Mishmi takin, red panda, snow leopard, clouded leopard, elephant, hoolock, sloth bear, Himalayan bear, wild buffalo, gaur, sambhar, swamp deer, musk deer and barking deer are seen. A wide variety of birds including the hornbills, magpies, orioles, king-fisher, pheasants, partridges and quails are seen. The rivers and streams abound with several kinds of fish.

Constraints on Development

In the execution of the developmental activities in Arunachal Pradesh, several difficulties have to be faced. While formulating the developmental activities, the local factors like special geographical features, the natural resources and the bottlenecks in their development need consideration The important among the special geographical features are the occurrence of international borders, difficult and hilly terrain, its many rivers and streams, the heavy rainfall, the varied climatic conditions including humidity and dampness and the corridor entry to meet the rest of the country. The natural resource potential of the state is high particularly with regard to oil, gas, hydel and thermal power potential, mineral and metal resources, water resources for navi-

gational and agricultural purposes.

In addition, the climatic and soil suitability for important cash crops like coffee, tea etc. and forest resources of timber for wood-based industries, livestock and fish resources of the State are to be mentioned. The constraints are trasport difficulties mainly due to difficult terrain, heavy rainfall, large number of rivers and streams which cause floods and which make development of roads and transport facilities a difficult and costly proposition. Further, low density of population with low investment per unit area and lack of area development due to these are to be reckoned with. Moreover, to harness the rich natural resource potential, the government investment has to be quite high. As a result, almost the entire development of mineral, oil and gas has remained in the investigation stage only.

The forests are still the only appreciable natural resource which earns considerable revenue in Arunachal Pradesh and they play an important role in the economy of the state. During the last three years ending 1975-76, the Forest Department has earned an average of Rs 18 3 million which is nearly 80% of the total state revenue.

Development Programmes

While the reserve forest occupy only 9% of the total geographical area, the village forests occupy 53% of the geographical area. In view of this, our future development strategy has to aim at not only the development of the Reserve Forests under the control of the department but also the village forests which remain with the villagers. This is all the more necessary in view of the fact the environmental factors are modified by the different variables involved in the environment as a whole, be they in our outside the Reserved Forests. The development activities taken up in the Reserved Forests and Village Forests will be described below.

(a) *Reserved Forests* : Like the rest of our country, plan schemes to develop the forests were framed from the First Five Year Plan onwards. Till now 14,138 hectares of plantations have been raised under artificial regeneration, 8,884 hectares of plantations have been raised under natural regeneration besides ending 886 hectares of forest plantations. Medical plants and spices have been raised in 200 hectares. Survey and demarcation of forest boundaries has been done in 1,500 sq. km of forest area. Other schemes taken up are a Working Plan & Resources Survey, Forest Research, Wildlife & Publicity, growing orchids and afforestation works. Annually about 1.9 lakh Cum-timber has been extracted by laying out 1,114 km. of forest roads. As amenities to the forest labour, 856 no of buildings have been constructed. Avenue trees have been raised over 250 km. length of road.

The details of financial target and achievement since the First Five Year Plan for forest development may be of interest :

	Target	*Achievement*
	(In lakhs	*of Rs)*
First Plan	26.17	23.15
Second Plan	34 02	32 20
Third Plan	42.80	51.01
Fourth Plan	67.57	42.99
Fifth Plan	160.00	158 06
(1974-75 & 75-76)	78.62	71.32
(1976-77 to 78-79)	240 00	—

The National Commission on Agriculture in their interim report on "Production Forestry Man-made forests", (1972) recommended that since the State Forest Departments do not generally have adequate finance to take up large scale forestry development activities, the State Forest Departments should resort to institutional finance for developing their forests. Accordingly, it is proposed to form a Forest Corporation to take up intensified timber extraction and plantation activities which would not only help to tap the interior forest areas by laying out more roads and other communication facilities but also help to raise large-scale cash crop plantations like rubber, coffee, spices etc.

The Forest Corporation will also help to market the various minor forest produce including medicinal plants collected by the local people so that exploitation by middlemen can be eliminated. This will ensure a reasonable return to the people, payment of minimum wages to them and increase employment opportunities among the people. These measures will help implement Prime Minister's 20-point Programme.

Village Forests: In the development of the village forests, the main problem is one of eliminating shifting cultivation which has been going on for generations. The local people have been practising shifting cultivation for the past several centuries and so they are reluctant to part with the forest areas for any developmental activities and want to continue the shifting cultivation. Unless this baneful practice of shifting cultivation is controlled, regulated and contained, it will not be possible to effect any substantial change in the economy of the people of this region. It is needless to emphasise that it is the shifting cultivation which to a large extent is responsible for the heavy floods which result in severe erosion and landslides. In our efforts to control the shifting cultivation, we have to secure the willing and voluntary co-operation of the people to subject their lands to the new agri-silvicultural practices. Further, the management plans will have to be a composite package plan of forestry, agriculture and animal husbandry disciplines covering not only the lands handed over to the forest department but also portions of land kept by them for their use, taking each catchment area as a unit of management.

The past efforts of the Forest Departments in the management of 147 sq km. of Namsang and Borduria forests in Tirap district owned by the tribal chiefs taken on lease for a period of 50 years through an agreement has been successful. By a trust deed executed in 1960, major portion of the profit obtained by the management of the forests was remitted to a People's Trust Fund operated jointly by the General Administration and Forest Departments. This trust fund has been very usefully spent for the social welfare activities of the local people particularly for educating them on modern lines by starting a residential boys school at Deomali for about 300 boys in an estate of 250 acres by entering into an agreement with Ramakrishna Mission authorities, Calcutta. In the same way, a girls school and hostel for 30 girls at Khonsa was started by Ramakrishna Sarada Mission authorities in 1973. A cooperative unit for production of tea-chest was started with a share capital of Rs 10 lakhs contributed by 4,000 Nocte Tribal people in 1972. This unit under the management of Forest Department has diversified its activities by installing a saw mill and an oil mill for producing mustard oil. The Forest Department, through scientific management of these forests, has been paying about Rs. 25 lakh annually on an average during the

last five years to the Peoples' Trust Fund.

The successful management of the Namsang Borduria Forests by the Forest Department has produced a far-reaching effect on the people. It has provided the necessary motivation in the people against destruction of Forests through the proposal which has now emerged under the nomenclature, Anchal Forests The creation of Anchal Forests has given the people a sense of participation in the preservation and protection of forests which would bring them handsome revenues and also provide a basis for forest-based industries. This thinking among the people was quickly translated into passing the necessary legislative measure for the purpose. As soon as the popular ministry was formed in 1975 The Arunachal Pradesh Anchal Reserve Forests (Constitution and Maintenance) Act, 1975 was passed. It is interesting to note that this is the first bill to be passed by the popular Government, of the local people after they assumed power in August '75. According to this Act, economically viable forest areas could be handed over by the Anchal Samities for management by the Forest Department which would raise the tree plantations and other cash crops suitable to the locality. The net profits in the venture will be shared equally by the Forest Department and Anchal Samiti which, in turn, will spend the amount on social and welfare activities of the people in the Anchal as well as other Anchals in the Zilla.

The Anchal Samities in the various districts have already placed certain forest areas for management as Anchal Forests and the works have been started during 1976 itself. It is expected that more and more Anchal Samities will come forward to place forest areas for management as Anchal Forests.

Full advantage will also be taken of the centrally sponsored schemes to plant up degraded forests and to raise mixed plantations in village waste lands and panchayat lands. The Forest department has also taken up forestry extension works to plant up canal banks and roadside avenues.

Through successful management of the Anchal Forests, it will be possible to bring large areas of village forests under scientific management and the net revenue that accrues can be spent for the welfare activities of the people. In Arunachal Pradesh this Anchal Scheme will be the main plank of forest development strategy of the village forests and it is expected that successful management of the Anchal Forests will be able to convince the local people of the economics of scale involved in following permanent cultivation methods and will also serve as a nucleus to propagate the modern methods of intensive cash crop cultivation rather than extensive cultivation under jhooming methods □

I came in touch with the tribal people of the North-East Frontier of India, more especially of the Hill District of Assam. My liking for them grew and with it came respect. I had no sensation of superiority over them. My ideas were not clear at all, but I felt that we should avoid two extreme courses: one was to treat them as anthropological specimens for study and the other was to allow them to be engulfed by the masses of Indian humanity.

Jawaharlal Nehru

PARUL DUTTA

THE PEOPLE

Their Socio-Cultural Life

A Mishmi Couple from Lohit District

THE 83,500 sq km of land, along the southern slopes of the eastern Himalayas to the western slopes of the Patkoi Hills around the Brahmaputra valley that has emerged as a new state with the name of Arunachal Pradesh is the home of some twentynine major tribes, with a population of 3.7 lakhs. The various tribes composing this population are: Monpa, Sherdukpen Aka, Khawa, Miji, Bangni and Solung of Kameng District, Nishi, Apatani, Hill-Miri, Tagin, Solung and Mikir of Subansiri District, Adi, Memba, Khawa and Mishing of Siang District, Mishmi, Khampti, Singpho, Khamjang, Miri, Padam, Tibetan and Chakmas of Lohit District, and Nocte, Wancho, Tangsa, Singpho and Lichu of Tirap District.

Somê of these major groups are further divided into sub-tribes mainly on the basis of differences in their dialects. Racially the tribes are Indo-Mongoloid Somatomatric study shows brachy cephalic element among the Monpas and dolicocephalic among other tribes Monpas are a simple, gentle and courteous people. They are friendly and possess a rich heritage of culture They dress well in artistically designed clothes. Their communal life is rich and happy. They follow Buddhist religion and belong to the Mahayana cult. Each house has a small chapel attached to it.

The Sherdukpens are a small tribe They are good agriculturists but their main interest is trade. They resemble the Monpas in many ways. Their religion is an interesting blend of Buddhism and tribal magico-religious beliefs.

A young wancho from Longding, Tirap District

The Mijis are also a small tribe numbering nearly 5000. Their tradition says that they were originally settled in the plains of Assam. They have also come under the influence of Buddhism though they are not Buddhists, strictly speaking.

The Sulungs are considered to be one of the oldest tribes in this area. They dress like the Nishis. Their religion is a form of the primitive—spirit culture.

The Akas have a custom of painting their faces with black marks. They figured frequently in old historical records. They believe that they were related to the Ahom Kings. They are keen traders and trade mainly in cloth, blankets, swords etc. They have come to some extent under both Hindu and Buddhist influence.

The Apa Tanis are settled agriculturists inhabiting the valley around Ziro—the district headquarters. The men-folk tie the hair in top-knots and tattoo the face. Wearing circular nose plugs is the characteristic ornamentation of Apa Tani women. The Apa Tanis are good cultivators and practise both wet and terrace cultivation. Unlike other tribes of Arunachal their economy is stable.

The Tagins inhabit the northern part of Subansiri District. Their main occupation is agriculture. Polygamy is customary among them. Their dress is very simple consisting of only one piece of cloth.

The Nishis (formerly called Daflas) are divided into several exogamous clans. Their economy is self-sufficient and for this reason they depend mainly on the Apa Tanis. Nishi men keep their hair long and tie it in a knot just above the forehead. They wear cane bands around the waist. They believe that after death the spirit of the dead travels to the "villages of the ancestors".

The Hill Miris inhabit the lower Kamla valley. They were given three names — the Panibotia, the Tarbotia, and the Sarakdwar Miris. They have had intimate contacts with the plains of Assam since long past. They look attractive in their dress. They also tie the hair in knots above the forehead. The Hill Miri women wear an attractive "crinoline of cane rings" which serve the purpose of a blouse.

The Adis have two main divisions—the Bogums and the Bomisand. Under each there are a number of sub-tribes such as Minyongs, Karkos, Shimongs, Bomdo Janbos, Panggis, Pailibos, Bogums, Padams, Milangs and so on. The Gallongs are another group of Adis divided into about seven sub-tribes.

The Adis by nature are democratic and have a unique sense of history. They have well organised village councils called *Kebangs*. Their traditional dance, called Ponung, is famous in the whole of Arunachal Pradesh. Dances are very popular among them.

Adi villages are situated generally on the spurs of hills. Polyandry is unknown but polygamy is practised. Adi women are very good weavers and weave cloth with highly artistic designs.

Khampas and Membas inhabiting northern Siang are Buddhist by religion. They resemble a great deal the Monpas of Kameng district. Polyandry is prevalent among them. But it is more in vogue among the Membas. Agriculture is their main occupation. Millet and Maize are their staple food. They grow cotton and barley also.

A Nishi father with his daughter, standing in front of his bamboo cottage built on stilts.

Mishmis form the bulk of the population of Lohit District There are also the Khamptis, the Singphos and a few Adi settlements. The Mishmis are divided into three main groups—namely Idus, Digarus and Mijus. The Idus are also called Chulikatas, the Mijus—Kaman and the Digarus—Taraons. A section of the Idu Mishmis are also called Bebejia Mishmi. Their women are expert weavers and make excellent coats and blouses. Agriculture is the main occupation of the people. By nature they are traders. Since very early days the Mishmis had trade relations with the plains of Assam. The chief items of trade are deer musk, wild medicinal plants, animal skins, Mishmi-tita, etc.

The Khamptis live to the south of the district. They are believed to have migrated from the Shan states of Burma. They are the only tribe in Arunachal who have a script of their own They are Buddhist by religion, and bury their dead in a coffin.

The Singphos represent a section of the Kachin tribe of Burma. They live on the banks of Tengapani and Noa Dehing rivers They are agriculturists and expert blacksmiths The ladies are also good weavers. They follow Buddhism but at the same time believe in a host of spirits.

The Wanchos inhabit the western part of Tirap District, bordering Nagaland They are a carefree, cheerful but hardworking people. Head hunting was customary with them in the old days It was connected with many of the social activities of the tribe Their society is divided into four classes: the Wanghams (chiefs), the Mangpans, the Wangaus and Wangsas. They have a strict sense of discipline and the law and order of the society is maintained by a village council. The entire tribe is divided into about forty confederacies of villages. Tattooing is a social custom among them. They believe in the existence of two powerful deities, Rang and Baurang. The women are good weavers but the art is restricted to the members of the chiefs' families only. They are experts in wood carving also.

A farmer from Daporijo, Subansiri District. The heavy overcoat he wears is made of vegetable fibre

Children from Dirang village, Kameng District

The Noctes inhabit the central part of Tirap to the east of the Wanchos. They are organised under powerful chiefs—those of Nam sang and Borduria. They profess Vaishnavism and are disciples of the Bareghar Satra of Nazira. Naga Narottam who was a close friend of Shri Ram Dev Ata, the founder—*satradhikar* of the Bareghar *Satra*, became his first disciple. Noctes are famous as salt-producers and salt is their chief item of trade and barter. They are also agriculturists, and cultivate betel leaves on a commercial scale.

The Tangsas live to the east of the Noctes—right upto the Burma border Tangsa is a common name given to a group of sub-tribes, such as Lungchang, Moklums, Yogli, Lungri Havi, Mosangs, Tikhak, Ponthai, Longphi and so on. They have migrated from Burma and many of their kinsmen are still there on the other side of the Patkoi Range. Their dress is similar to that of the Burmese. They believe in a number of spirits. Tangsa women are good at weaving.

Agriculture is the mainstay of the people of Arunachal. The system of cultivation is mainly Jhooming—with the exception of the Apa Tanis

who depend on wet rice cultivation. Terrace cultivation and wet rice cultivation have now been introduced among the other tribes also. Rice is the staple food though millet and maize are also eaten by some.

All the people have a tradition of artistic cr.ftsmanship which manifests itself hrough the various products they produce. A wide variety of crafts which include weaving, painting, pottery, smithy, bamboo and cane-work, wood carving and basketry—are found among the people of Arunachal.

They have rich heritage of arts and crafts and the Government is making all round efforts to help develop these traditional crafts.

The society of the people of Arunachal are patriarchal and primogeniture is the fundamental law of inheritance though variations are not very uncommon. They follow endogamy and strictly observe the rule of clan exogamy. Polygamy has social sanction and is practised by most of them.

An Adi, with his brass pipe. They use local variety of tobacco in Arunachal Pradesh

The social life of the people of Arunachal is highly democratic. Each tribe has its own organised institutions called by various names, such as *Kebang* of the Adis, *Ngongthun* of the Noctes, *Jong* of the Sherdukpens, *Mele* of the Akas. *Buliang* of the Apatanis, *Wancho-Wanges* of the Wanchos and so on. These organisations maintain law and order, decide disputes, take up all activities for the welfare of the tribes and the villages. The members constituting these organisations are selected by the people

The whole population of Arunachal may be broadly divided into three cultural groups on their socio-politico-Religious affinities. The first group of tribes profess Buddhism. They are the Monpas, Sherdukpens, Membas, Khambas, Khamptis and Singphos. The second group consists of tribes like the Aka, Khowa, Miji, Bangni, Solung, Dafla, Apatani, Hill-Miri, Tagin, Adi, Mishmi, Tangsa etc. These tribes practise a sort of religion which may be called as magico-religious beliefs and practices. In the third group the Wanchos and the Noctes are included because of heir association with the cult of thead-hunting The Noctes of this group are disciples of the Bareghar Satra of Nazira and hence they are Vaisnavaite by religion

There are a few other tribes who also practise Vaishnavism as their religion namely the Akas, Nishi and the Mikirs The Akas are the disciples of Nikamul *Satra* of Tezpur while the Nishi are disciples of Gharmara *Satra* of North Lakhimpur

Women husking paddy. village Daporijo

The political organization of the first and the second group of tribes centres round the village councils except the Nishi and the Idus. The third group of tribes have strong chieftains as their political head.

On the basis of the material culture the whole Territory can again be divided into three cultural areas. In the first group Monpas, Sherdukpens, Membas and Khambas can be included These tribes practise terrace rice-cultivation and their domesticated animal consists of pony, yak, sheep etc. They build their house out of stone and wood. Their dress and costumes are mainly made from wool

The second group consists of a large number of tribes from Eastern Kameng and whole of Subansiri, Siang, Lohit and Tirap. The main feature of their material Culture is shifting cultivation and hunting except the Apatanis who practise mainly wet rice cultivation.

They live in pile-dwellings made of bamboo and leaves. Their costumes are made of cotton. Their different items of dress are made from natural fibres locally available and cotton.

The third group is composed of the Khamtis and the Singphos. They practise set-rice cultivation. Their domesticated animals are Buffalo and Elephant.

The population of Arunachal is not a homogenous group though racially they have been included within the broad family of Indo-Mongoloid. Analysing the cultural traits of the people we find that the patterns of culture as obtain in Arunachal Pradesh can be discussed within the framework of two main groups—the Bodic and the non-Bodic.

Among the Bodic group we find the use of stone and wood for their

An old Adi lady of Siang District

house and furniture, wool for their dress, which is tailored and woollen felt cap as head-dress. Their ornaments are made of beads and silver. The food consists mainly of maize and barley with butter. Their arts and crafts are made of wood and work. Wood carving and painting, is a peculiarity of the Bodic group. Dance is very popular among them. They have different musical instruments of their own and also of the Tibetan type among those who live in the north. Their religion is sophisticated and they have temples, images, sacred literature and well-organised priesthood.

The non-Bodic group on the other hand use cane and bamboo for their house and furniture, nettle fibre and to a less extent cotton for their dress with [illegible]tailoring. They wear cane [illegible]ies, goat's hair, gl[illegible] beads in [illegible]es and

An [illegible] mother with her child. The [illegible] have tattoo marks and distinctive [illegible] decoration both of which are being given up by the younger generation.

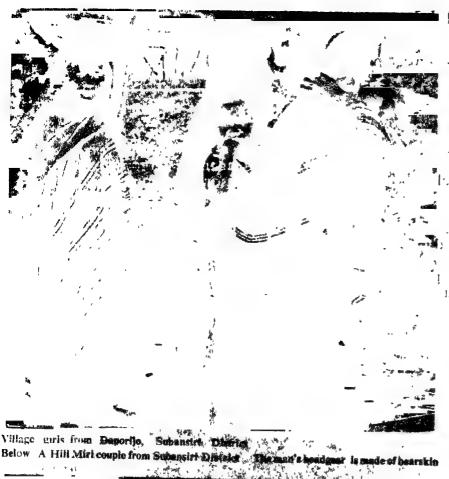
silver coins for ornaments. Bamboo nose plug is a characteristic of Apatani women. They crop their hair (semi or full) and tie it into a nape knot as among the Daflas, Apatanis and Hill Miris. Their food consists mainly of rice and millet. They are expert in cane and bamboo work and to some extent blacksmithy. Their dance is generally religious. Musical instruments are very rare among them and may consist of only the gong, drum and logdrum. Jew's harp is also common. The existence of the dormitory system among Noctes, Wanchos and Padam-Minyong is another characteristic feature. Non-Bodic religion is based on faith in spirits and deities with oral sacred literature, but without organised priesthood and centralised places of worship.

Besides the distinguishing characters of the two main groups, the tribes of Arunachal were integrated groups independent of each other and living their lives separately. The only relation between them was that of:

(a) (i) barter trade in which individuals of each society and not the groups acted as units.

(ii) frequent feuds—arising out of infringement of political and economic rights in which the

Village girls from Daporijo, Subansiri District

Below A Hill Miri couple from Subansiri District. The man's headgear is made of bearskin

groups acted as units but for a few exceptions. One such exception where the units were individual families or clans was reported to be the Apatanis of the Subansiri District.

(b) Society was governed either by chiefs as in the case of Wanchos, and Noctes or by village elders as in the case of the Adis notably. In tribes where individualism was the predominant character as in the case of the Idus and Daflas, there was no particular machinery and in such cases it was the family and the clan which handled issues when they came to head in the form of vendetta.

(c) The societies were casteless but had classes such as chiefs, artistocrats and commoners, slaves, freeman etc.

(d) The pattern of life was uniform, each individual lived in the same way and followed the same occupation. Disparity in economic status was hardly noticeable though the better off and the worse off were not unknown.

(e) Patriarchy is the form of society with primogeniture as the fundamental law for inheritance. Monogamy is the basic rule within the framework of clan exogamy and group endogamy.

(f) The main occupation is agriculture with crafts such as weaving and basketry as subsidiary ones. All productive activities were on the consumption level, each family meeting its own demand. Women were the main producers both in field and at home (except in basketry) and the maintainers of the family. Control of the society, maintenance of law and order and settlement of inter-tribe affairs were masculine functions.

(g) Ethical code was of single standard and written law was not necessary. Association of individuals within the society was compulsory. Individual preference or choice was not permitted in associations. All had to conform to the pattern in vogue. □

JHOOMING AND
TS CONSEQUENCES

DR. MRS. BARTHAKUR

Nearly seven per cent of India's populati-
ı belong to Scheduled Tribes and practically
e entire territory of Arunachal Pradesh is
habited by them. In spite of their rich tra-
tions of culture most of them are economi-
ly backward because agriculture which is
eir main stay is primitive and allows little
plus. The most characteristic agricultural
ictice of the tribal people living particularly
he hill areas is what is known as jhooming which consists of clearing a forest on a hil slope and burning the undergrowth to prepare the land for seasonal agriculture. This has, for centuries, resulted in the denudation of forest areas and brought about tragic erosion of soil which cannot be replaced

In this article Dr Mrs. Barthakur examines this destructive agricultural practice and its impact on the land and people of Arunachal Pradesh

This is a partial view of the Apa Tani Plateau, inhabited by the Apa Tanis who are known to practice settled agriculture for generations. Even so, the hills in the background, now practically bare of trees, show evidence of jhooming. It will take many decades for trees to grow again here after all the erosion that has taken place,

WHATEVER BE THE subsidiary occupation of the Scheduled Tribes population, agriculture continues to engulf the entire life style of the Scheduled Tribes. In the class room of their agriculture, they have learnt the way of their life. Their social behaviour, their life pattern, social ceremonies and almost their entire economic life revolves round agriculture. To bring about a major change in their standards of living, it would require a major thrust into their agricultural practices and persuits in an integrated manner.

In order to do this, it is necessary to understand what their agricultural practices are: and why—over the centuries they have not changed to better methods, and what is required to be done to change these to something more profitable.

The most predominant agricultural practice followed by most of the Scheduled Tribes, is the swidden type of cultivation, popularly known as the 'Slash and Burn' cultivation. Let us examine this practice in depth because it continues to predominate India's hilly terrain. The technology used in this type of cultivation, though primitive, does give a few definite and real advantages to the cultivators, because of which it has continued so long On the other hand, the disadvantages are not immediately visible to the farmers excepting in areas where sudden and unnatural population increase and other compulsions have created laboratory conditions.

The Swidden Cultivation

Under the swidden (Jhooming) cultivation, every year thousands of hectares of forests are cut, burnt and planted in successive cycles. Usually a group of households or an entire village selects a suitable plot for swidden cultivation. At the time of selection of the plot, a number of factors are taken into consideration. The growth of the vegetation has to be sufficient to provide enough ashes, the soil must be of particular depth and colour to guarantee minimum fertility. Nearness to a water source, to the farmers, residence and the land free of certain types of pests and animals, the availability of sunshine etc are some of the other considerations. Many tribes, however, invoke blessings and divine favours through omens with the help of a haruspex before the site is finally selected for the slash and burn type of cultivation. The vegetative growth is cut and for a certain number of days the cut jungle is allowed to be dried before it is fired. The method is basically of cultivating the hilly tracts without terracing and without modern technology and inputs. The ash derived from burning is the only form of manure applied to the land. After cultivating the plot for a season or two, depending upon the land's fertility, it is allowed to lie fallow for a number of years, depending upon the generative capacity of the land. The swidden cultivator moves to the next plot of land. He may return to the same plot after a few years. A number of patches of land are thus locked under the Jhoom cycle. All these by turn are cultivated and exposed to the soil erosion forces. He introduces no inputs excepting his labour and seeds, and exploits the land of its natural fertility.

A view of terraced farm with hills clothed in dense jungles. A hill stream supplies water for irrigation

Advantages of Swidden Cultivation

The Jhoom fires quickly render a dense forest fit for growing crops Fire is thus a great labour saving device and clears the cut jungle in a very short time. The ashes correct the soil acidity, and the admixture of ashes with the soil makes the soil more fertile. The soils of hill slopes of high rain zones are generally acidic, which are thus partly neutralised by the alkali content of the ashes. Further, fire clears the area of extensive preponderance of fungi, insects and pests. Not only the insects and pests of the Jhoom plots with their larva and eggs are burnt but the Jhoom fires which are usually lit at night and continued for a few days, attract insects and pests from the surrounding forests. This rids the area of these pests which later would have destroyed the crops. The clearance of insects and pests from the surrounding area to the Jhoom plot creates a protective belt and keeps the crops safe from the heavy inroads of insects and pests. In many parts of the country it has been seen that stoppage of Jhoom fire has led to enormous increase in the incidence of insects and pests, as the forest fires no longer keep them under check. In some areas after the sudden stoppage of Jhoom the attacks of insects and pests had been so heavy that 50 per cent of the crops were lost. Moreover, it is believed that burning also retards the growth of weeds in the Jhoom clearing by destroying the roots of the tubers and seeds of the weeds. It renders the tubers and roots dormant for a period of time.

The shifting cultivator thus reaps a number of very tangible technological advantages i.e. lesser input of labour, the pests and insects and fungi destroyed, the soil neutralised and fertilised, and less time and labour spent on weeding etc. If the fire had not helped him in this manner, he would have laboured

more and reaped less.

The spine of the hill man is used to the slopes. He finds it [illegible] to work on [illegible] to [illegible] thi[illegible] du[illegible] cul[illegible] hill[illegible] lan[illegible] co[illegible] is [illegible] ma[illegible] cul[illegible] ed [illegible] whe[illegible] land[illegible] mo[illegible] vati[illegible] need[illegible] valle[illegible] afte[illegible] padd[illegible] had [illegible] rath[illegible]

Fu[illegible] Jhoo[illegible] promise between pure hunting and food gathering on the part of the men and the very limited kitchen garden cultivation practical for the women in the habitations, during the very process of movement to the Jhoom fields and working them (that limited hunting) the trapping of animals, even of the smaller ones like squirrels and birds etc. could be carried out. The jungle inside the Jhoom clearance, before and after its burning and the forest immediately surrounding the Jhoom fields yield a variety of vegetables, mush-rooms, tubers, not to mention the firewood which could be conveniently taken away by children, and thus provide a more varied diet as well as a diversification of activity which contributes towards a happier and more balanced mental make-up than a single minded concentration in cultivating permanent terraced fields.

The shifting cultivators usually grow mixed crops on Jhoom fields. They harvest continuously for a long period and obtain an admixture of crops one after the other which provides them almost with everything they need for their daily use. Whatever little extra they require, they collect from the forests. They sell or purchase very little, if at all! They virtually generate no economic surpluses, and effect no exchanges.

Moreover, on Jhooms, lesser labour input per day on an extended period of time is required, which is what a family can manage more easily compared to the intensive labour input requirement of a settled cultivation particularly of irrigated terraced paddy fields.

A study conducted by the author [illegible] input and output

New Jhooms on the virgin or forested lands are highly productive [illegible] when terraces [illegible] cut away [illegible]

[illegible] do not acquire the required fertility for a long time. But over a time and with inputs, terraces tend to improve in fertility, but the reverse is the case with Jhoom lands. Over a time, population pressures and various other compulsions lead to reduction in the Jhoom cycle, which in turn encourages larger areas under Jhoom cultivation because the shifting cultivator strives to harvest his requirements on lesser and lesser yielding lands. A stage may however come when it becomes utterly uneconomic to spend some labour and waste the seeds as the output would be miserably low even to permit those meager inputs.

The Disadvantages of Swidden

Severe reduction of Jhoom cycle, associated with higher rate of soil erosion, resulting in a drastic and sudden fall in the land fertility, severely disturbs the 'land and man equilibrium'. The disadvantages are discernible to the soil experts. They know and can clearly foresee and visualise that the shifting cultivation in the long run denudes the hills, covered by beautiful forests, runs the generative soil down the hills, dries-up the streams and brooks which oozed out of the blanket of forests, to sustain the game and regenerate the old Jhoom sites at a rapid pace. The soil, which was built by nature over the centuries runs down the slopes in a matter of seasons. The risks of soil erosion get greatly pronounced in heavy rain zone areas. Planning of crops in traditional anti-contour manner to save the crops from water logging aggravates the situation, and the soil erosion process is accelerated. With the destruction of generative top soil, the productive capacity of the soil is destroyed. "The world civilisation has survived on six to nine inches of the top soil. Remove one third of the skin cover of man, and he will die; scrape-off the top soil of the earth and life will cease to exist. With the loss of the fertility of good earth, many a civilization in Asia, Africa, Europe and other parts of the world have disappeared. Who among us does not see the craggy hillocks with stones jutting out and how many among us feel that once they had a cover of trees and grass but have been reduced to a sorry state by the neglect of man and fury of nature.

It is the top soil that eventually becomes impoverished in the hills as a result of generations of ever extensive Jhooming to meet the requirements of an ever increasing population. A stage may arrive when even an input of household labour and seeds from the last year's harvest may become uneconomic judged from the output. Jhooming is the most primitive agricultural practice. In this destructive process, the character of vegetation undergoes a drastic change. The regression proceeds pace and the forest of high trees gives place to low vegetative cover, such as bamboos, grasses and shrubs.

With the increase in population, the pressure on land tends to intensify and wider areas give way to low shrubs from the magnificent cover of tall trees that sustains what is good in Jhooming as a method of cultivation and as 'teacher' of a way of life. The most serious imbalance is brought about by the destruction of the equation between the hunting-cum-collectional economy and Jhooming. Next in importance comes the disappearance of the mountain streams. Disappearance of these streams also comes in the way of the construction of irrigated terraced fields at a later stage.

All the above mentioned disadvantages are, however, not visible to the man who causes it. He is not yet enlightened about it. Even if he is told that after a hundred years his land would be impoverished, he would not change. What else can he do 'now' to live? To him 'now' is more important than 100 years hence. He continues to reap the advantages from the swidden type of

cultivation. To him, the advantages are real and available, and he has not seen the denuded hills and impoverished lands, and perhaps it is beyond his comprehension that the swidden cultivation done by the people of distant past has created the impoverished land conditions on the hill slopes of many countries of the world.

Shift from Swidden to Sedentary:

In summation, it may be said that with the reduction in Jhoom cycle, the soil fertility quickly decreases resulting in further reduction in the Jhoom cycle. Leaching, erosion and loss of fertility takes place with rapidity The yields per unit of land becomes progressively lesser and lesser. All this further aggravates the situation The progressive reduction of Jhoom cycle and its fertility makes the shifting cultivator increasingly poor in spite of his putting in much harder labour In distress, he is slowly forced to sell away or eat up his livestock. He and his family members begin to swarm the unskilled daily wage market. His nutritional levels fall, and he is no longer cheerful, well-fed and healthy He learns the hard lessons of poverty and deprivation With the fall in nutritional levels, they easily succumb to many diseases. Once the stage is reached where the Jhooms are no longer productive, all else happens swiftly.

Sub-marginal Jhoom lands are pushed out of cultivation, and wherever possible the bench terraces which have over the years gained in fertility and can produce better than the marginal Jhoom lands come to be cultivated. Sedentary cultivation receives their practical indulgence. At this step, the shifting cultivators need understanding and careful expert handling to make them cross the confusing cross-roads

Time to Introduce New Technology

Therefore, it follows that much before reaching that final stage of communal destruction, technological shift in agricultural practices has to be inculcated Obviously, this can be done by introducing the practice of sedentary cultivation at the present stage of a Jhoom based community, even though the present productivity of the sedentary cultivation may be lower than that of Jhoom fields Because, as the fertility of Jhoom fields gets further reduced as the result of reduction of Jhoom cycle and consequent reduction in fertility of Jhoom fields, the downward trend of the fertility of Jhoom fields will equate with the productivity of sedentary cultivation, at a point of time When that happens, a switch over to sedentary cultivation will be automatic if the base for the same has already been created. It may not be unreasonable to think that with added inputs the productivity of sedentary cultivation may catch up with that of the Jhoom fields much earlier than what can usually be predicted In that event, sedentary cultivation may become more popular much before the Jhoom fields have lost their fertility below the minimal level Such a situation will have two effects Firstly, a large portion of the community will take to sedentary cultivation producing an agricultural surplus sufficient to meet the requirements of the community, allowing the Jhoom fields to alter its technological holding to such alternatives, like horticulture and forestry management. Secondly, the residual of the community which cannot take to the sedentary cultivation, because of lack of extraneous resources, or because of compulsions that may be inherent in the socio-economic conditions of the community, such as in ownership rights on land, will be able to continue to derive a marginal subsistance from the community Jhoom fields, which have not yet lost their productivity below the minimal level This will safeguard against social disturbances potent in changing technological holding on land from the traditional pattern to something else .□

TELECOMMUNICATIONS IN NORTH-EASTERN REGION

DR. P.N. CHOUDHRY

POSTS AND TELEGRAPHS Services are an essential component of the infrastructure for the economic and social development of a country These services are vital for Government Administration, efficient operation of trade and commerce, social intercourse and personal communication By establishing close links between different parts of the country, the P & T services convey a sense of unity and national integration

The North-Eastern Telecommunications Circle serves the States of Assam, Manipur, Meghalaya, Nagaland, Tripura and the Union Territories of Arunachal Pradesh and Mizoram covering an area of 250,433 sq. km having a population of over 195 lakhs according to the 1971 census

The topography of the Circle having seven strategic States, comprising mostly hilly terrain (except the valley of Assam), the mighty Brahmaptura with its 129 tributaries bringing unprecedented floods which is almost an annual feature, makes the maintenance of communication a challenging job. Other natural calamities like landslides, wild elephants, phenominal growth of vegetation and the limited road and rail communication facilities present a wide range of problems faced in the maintenance of telecommunications.

At the beginning of the First Five Year Plan, there were only 13 exchanges and 3265 telephone subscribers in this Circle. The total number of exchanges in this region stands at 192 today with 27400 telephone subscribers Seven new telephone exchanges have been commissioned during the last seven months of the current year itself and another two will be commissioned during the P & T Week In 190 of these exchanges, waiting lists have been fully wiped out and telephones are being provided on demand to applicants

Trunk Service

The total number of trunk exchanges in the North Eastern Telecom Region stands at 45 today with over 1200 trunk circuits The trunk service in the region originally depended mostly on the overhead lines which were subjected to frequent interruptions due to various reasons like difficult terrain, floods, cyclones, storms, thick jungle growth and copper wire thefts. With the installation of the first major microwave link in 1966 connecting Calcutta, Siliguri, Gauhati, Shillong, Jorhat, Tezpur, Dibrugarh and Tinsukia, communications started to stabilise Several new cities have since been brought on microwave map Today North Eastern Region is already the biggest user of microwave Links in India. Work on the Rs 19 crore project for broadband microwave system is also in hand In the rural areas too, the total number of trunk public call offices has risen to 268 by now It is, therefore, not surprising that the number of trunk calls handled in the exchanges of N E Region has reached an all time high of over 55 lakhs a year During November 1976, the trunk call effective percentage has already crossed the objective of 80 per cent in several exchanges, including 84 per cent in Gauhati and 92 per cent in Itanagar which is the highest ever for this sector

The building for trunk automatic exchange at Shillong has already been completed at a cost of Rs 7 lakhs This exchange will, in course of time, provide subscriber trunk dialling facility, not only to all the automatic exchanges of the region connected by microwave system but even to those in the rest of the country. Trunk automatic exchange will also provide facility of dialling the booked trunk calls to large number of stations all over the country without having to provide individual dialling circuits to all those stations Ultimate capacity of this exchange will be 2000 lines Initially only 800 lines will be installed at a total project cost of about Rs. 45 lakhs

Demand trunk facilities have been introduced in a big way in this region As against two demand trunk routes existing till about six months back, 16 more routes have since been provided with demand trunk facilities. Demand trunk calls, as compared to normal booked calls are connected immediately and have become immensely popular in this region

Although excellent communication medium suitable for STD is available through the microwave system in this area, existence of a large number of manual telephone exchanges has been frustrating this possibility. Working on the philosophy of 'appropriate technology', a scheme for manual STD was conceived and the first such service was introduced, as an expeimental measure, between Tezpur and Gauhati in August this year.

Telex is the short name of the teleprinter exchange. There are two such exchanges working in this region at Gauhati and Shillong. In all 116 telex connections are working through these exchanges. The 20-line telex exchange at Shillong is proposed to be replaced by 50 lines. At Gauhati, a 100 line telex exchange is operating Expansion by 40 lines is expected to be taken up during 1977-78 These two expansions will wipe out the waiting lists. Work on installation of a 50-line telex exchange at Dibrugarh will be started shortly Telex exchanges are also likely to come up at Kohima, Imphal, Jorhat, Agartala, Silchar and Tinsukia

Rural Development Plans

As the bulk of the country's population lives in rural areas with an economy that is predominently agricultural, plans for extending telephone and telegraph facilities to 120 new stations in the rural areas of this region have already been finalised The work on some of these has already commenced. Plans for extending telephone and telegraph facilities to the tribal growth centres have also been completed for most States

A large portion of the long distance telegraph traffic is carried over teleprinters working on voice frequency telegraph channels Eleven departmental telegraph offices are working in this Circle and two more at Kohima and Aizawal are expected to be opened very shortly A full-fledged Departmental Telegraph Office has also been approved for Itanagar There are over 622 combined Posts and Telegraph Offices serving the rural areas in this region. The number of telegrams handled through this network is now over 90 lakhs a year.

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Prospects for Growth of Electronics Industry in Hill Areas with Special Reference to North-Eastern Region

A. K CHAKRAVARTI AND
R. C. CHOPRA

The hill areas, particularly those in the vicinity of the Himalayan Range, due to their peculiar geographical characteristics and limited infrastructural facilities, have remained relatively insulated from the impact of industrial activities in the plains The Government of India, conscious of this fact, is making considerable efforts to promote regionally balanced development, and has extended a number of incentives in the form of financial assistance and other subsidies/incentives

The present report aims at assessing the prospects for the growth of electronics industry in hill areas, reviews the various incentives/assistance provided by the Central and and respective State Governments, the current status of industrial activities and the socio-economic and educational background of these areas This background is used to analyse and identify those electronics items whose production can optimally utilise the existing facilities and have a potential for growth in these regions Estimate of the demand for radios/TVs has been made to bring out the feasibility of growing small scale units in hill areas and some working financial/technical details have also been worked out Suggestions have been made for promoting entrepreneurship in the electronics industry and creating awareness towards the use of electronic equipment for enhancing the productivity, particularly in industries which are based on the natural resources of hill areas such as tea, forest and agro-based industries.

IT HAS BEEN the constant endeavour of the Government of India to ensure a regional balance with regard to the level and the rate of development amongst the different regions in the country This objective was, however, attained only to a limited extent during the first three Five Year Plans and a new and different approach had to be initiated in 1968 Though India has made considerable progress during the past decade in the expansion as well as diversification of the industrial base, the hill areas, to a large extent, have remained relatively insulated from the full impact of developmental activities In order to promote industrial/developmental activity in the hill areas, there is need for a concerted effort to understand the whole range of factors responsible for backwardness in these areas, the peculiar physical geographical features, the highly-dispersed population, the near absence of a vocational diversification, meagre in-frastructural facilities, institutional and other shortcomings

There is also a realisation that unless adequate programmes are evolved for the conservation and proper utilisation of the resources of the hill areas, problems would arise not only for those areas themselves but also for other regions in the form of large-scale migration of people from hill areas in search of employment

A Committee of the National Development Council recommended as early as 1965 that special measures should be taken to accelerate the process of development in the hill areas The initial task of identifying industrially backward areas was first taken up in 1968 with the setting up of a committee under the chairmanship of Mr. B.D. Pande. Another committee under the chairmanship of Mr N.N. Wanchoo was appointed to suggest fiscal and financial incentives for promoting industrial development of backward areas. The wanchoo Committee, in 1969, recommended two or three districts in each backward State for special incentives. The assistance was to be in the form of a subsidy equivalent to one-tenth of the fixed capital investment in new projects or for expansion of existing projects provided the toal fixed capital investment requirement did not exceed Rs 5 million. Details of the incentives extended by the Central/State Government for promoting industrial activity in the backward areas are given later in this article.

In preparing the Draft Fifth Five Year Plan, the Planning Commission urged the State Governments to draw up separate integrated plans for their respective hill areas. The main strategy proposed was that since the hill areas differ in their

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resource endowments, problems and potentialities, they should be looked upon as distinct entities and programmes/schemes of specific relevance to them only be drawn up.

In order to bring into focus the enormous potential of hill states and evolve a practical strategy for harnessing it not only for the benefit of the hill states but also in the larger national interest, a National Seminar on Problems and Potential of the Hill Areas of India was held during 25-28 April 1975

Recently a Hill Area Planning Cell has been set up in the Planning Commission to undertake studies for formulating strategies of development in those areas In the Fifth Five Year Plan, priority has been accorded to regional schemes of agriculture, power and communication forwarded by North-Eastern Council (NEC) for securing a balanced development of the north-eastern region. It is expected that in the first three years, an expenditure of Rs. 280 million would be incurred on such schemes. Owing to initial difficulties in identifying and implementing schemes, the programme has had a slow start. It is, however, gathering pace A provision of Rs 620 million has been kept for the next two years. During the first three years of the Plan, central allocations would be of the order of Rs 760 million while the states are likely to invest about Rs 680 million. A provision of Rs. 940 million is earmarked for the next two years in the Central Plan

Classification of Hill Areas

The hill areas in India primarily comprise the Himalayan Ranges from Arunachal Pradesh in the east to Jammu and Kashmir in the west extending over a length of about 3,200 km with a width of 80 to 320 km

The following regions have been classified as hill areas as per the census

(i) Jammu and Kashmir
(ii) Himachal Pradesh
(iii) Uttar Pradesh—Districts of Uttar Kashi, Chamoli, Pithorgarh, Tehri Garwal, Garwal, Nainital and Almora
(iv) Sikkim
(v) Arunachal Pradesh
(vi) Nagaland
(vii) Manipur
(viii) Mizoram
(ix) Tripura
(x) Meghalaya
(xi) Assam—Districts of United Mikir and North Cachar
(xii) West Bengal—Darjeeling district
(xiii) Tamil Nadu—Nilgiri district

For the purpose of conducting a survey of industrial potential in hill areas, it may be appropriate to group them from the point of view of geographical proximity, similar cultural and historical background, and the common natural limitations for building the industrial infrastructure. From this angle, the hill areas are grouped as follows

(a) North Eastern Region—Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, hilly districts of Assam and West Bengal

(b) Northern Hill Areas—Jammu & Kashmir and Himachal Pradesh

(c) Parvathiya Uttar Pradesh—Districts of Uttar Kashi, Chamoli, Pithorgarh, Tehri Garwal, Garwal, Nainital and Almora.

Hill areas other than the ones in the proximity of Himalayan Range and Parvatiya Uttar Pradesh have not been included for this particular study.

Hill Areas : An Overview of the North Eastern Region

Hill areas in the North-Eastern Region comprise Arunachal Pradesh, Assam (United Mikir and North Cachar districts), Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura and Darjeeling district of West Bengal The entire region is a geographically compact unit. Each hilly region in small states is a relatively small area and the development of industrial infrastructure in each state by itself for major projects may not be a viable proposition for all sections of the industry. Therefore, it is necessary for any meaningful, pragmatic planning that the complementary resources/ endowments of the constituent units are integrated to evolve a regional plan. As such the entire region is backward and some of the states are newly formed, and therefore are not geared up for large scale resource mobilisation and even utilisation.

Recognition of the above fact has resulted in the formation of the North-Eastern Council with the Parliament Act No. 84 of 1971 looking after the interest of the area comprising the States of A Manipur, Meghalaya, Na and Tripura, and the Union tories of Arunachal Prades Mizoram. The functions c Council are detailed below

The Council is an advisory and discusses any matter in some or all of the States repr ed in that Council, or the Unic one or more of the States repre in that Council, have a commo rest and advises the Central G ment and the Government o State concerned as to the act be taken on any such matter, a particular, discusses and mak commendations with regard any matter of common inter the field of economic and planning, (ii) any matter conce inter-state transport and munications, and (iii) any n relating to power or flood c projects of common interest.

For securing the balanced lopment of the north-eastern the Council forwards prop (a) formulating for the States, resented in the Council a u and co-ordinated regional (which is in addition to the Plan) in regard to matters of mon importance to the area regarding the priorities of the jects and schemes included i regional plan and the stages in the regional plan may be i mented, and (c) regarding the tion of the projects and scheme cluded in the regional plan, t Central Government for its c deration.

The Council (a) reviews from to time, the implementation o projects and schemes include the regional plan and recomm measures for effecting co-ordin among the Governments of States concerned in the matt implementation of such pro and schemes; (b) where a proje scheme is intended to benefit tw more States, recommends the ma in which (i) such projects or sch may be executed or implemented managed or maintained, or (ii) benefits therefrom may be sh or (iii) the expenditure thereon be incurred; (c) on a review progress of the expenditure, re mends to the Central Governr the quantum of financial assist to be given, from time to time the State or States entrusted the execution or implementatio any project or scheme include the regional plan; (d) recomm

to the Government of the State concerned or to the Central Government the undertaking of necessary surveys and investigation of projects in any State represented in the Council to facilitate consideration of the feasibility of including new projects in the regional plan

The Council reviews from time to time the measures taken by the States represented in the Council for the maintenance of security and public order therein and recommend to the Governments of the States concerned further measures necessary in this regard.

Before proposing the areas for futuristic growth in the North-Eastern Region and the conscious plans for such growth, it may be appropriate to dwell in brief on the socio-economic and educational background of the Region, the existing infrastructure and industrial base and identification of industrial potential areas naturally more suited for the Region

Arunachal Pradesh

Arunachal Pradesh (earlier known as NEFA) is a mountainous territory in the north-eastern part of the country bordering Bhutan, Tibet, China and Burma The total population of the Union Territory is about 500,000 and literacy is less than 12 per cent About 50 distinct languages and dialects are spoken Arunachal Pradesh is not one socio-economic unit, but a conglomeration of cultures based on different tribal practices

Principal industries are forest-based. There is no major industry in the Union Territory Three medium and eleven small scale industries are functioning under private cooperative sectors. Medium and small industries established include saw mills, plywood and veneering mills, rice mills, fruit preservation units, oil expellers besides handloom and handicrafts industries There is no major irrigation or power project in Arunachal Pradesh other than four micro-hydel projects

Training in various trades such as wood-carving, weaving, carpentry, etc., is imparted from the various training and production centres besides producing articles on a mass scale. An Industrial Training Institute (ITI) at Roing gives training on technical trades.

The joint financial/institutional study team in their industrial potential survey report has identified some forest-based, agriculture-based and mineral-based industries (also by NIDC) for setting up in the Territory.

Assam

The Assam State is bound by Bhutan and Himalayan Ranges in the north, Arunachal Pradesh in the north-east, Nagaland, Manipur and Burma in the east, Bangladesh and Tripura in the south and south-west and West Bengal in the west Assam is divided into the plains of Brahmaputra valley and the hill divisions. The districts of United Mikir and North Cachar Hills are the hill areas in the State

Assam is primarily an agricultural State. The principal food crop is rice while the main commercial crops include tea and jute Assam contributes about 50 per cent of the total tea production of India.

Petroleum and petroleum products form the other main industries. New industrial units being set up in the Central sector are a refinery, paper mills at Nowgong and Cachar districts and a petrochemical complex at Bongaigaon. Other industrial establishments include Asoka Paper Mills Ltd., at Jogighapa, Assam Alkali Allied and Chemical Ltd., Jogighapa and Assam Petrochemical Ltd, Namrup

Assam has three universities, viz., Agricultural University, Jorhat, Gauhati University, Jalukbari, Gauhati and Dibrugarh University, Dibrugarh Assam is among the highly literate States in the country. Under the craftsmen training scheme, 12 mechanics are trained at Gauhati for radio and TV work.

During the Fifth Plan period, schemes related to large and medium industries under the Assam Industrial Development Corporation for the hill areas in Assam State include starch and glucose plant (Mikir Hills), sugar mill (Mikir Hills), cement plant (North Cachar Hills) and paper mill (North Cachar Hills) with a capital outlay of Rs. 41 8 million. For mineral development activities in hill areas, some expenditure is indicated.

Manipur

Manipur is bound in the north by Nagaland, in the south by Mizoram, in the east by Upper Burma and in the west by Cachar district of Assam. Nearly 92 per cent of the total land area is hilly and covered with forests. Manipur's economy is essentially agrarian; about 85 per cent of the population is dependent on agriculture for livelihood.

The State has no large scale industry. Handloom weaving is the largest single cottage industry. To accelerate the development of small scale industries, an Industrial Advisory Board has been set up and the jurisdiction of Assam Financial Corporation has been extended to Manipur. At Takyelpat near Imphal, an industrial estate is being set up.

There are a good number of colleges in the State and also a government polytechnic. Under the craftsmen training scheme, 16 mechanics are trained at Imphal for radio and TV work.

Meghalaya

The State of Meghalaya consists of two districts, viz., Garo Hills and Khasi and Jaintia Hills. In area and population, Meghalaya is bigger than Nagaland. Its important urban centres are Shillong, Jowai and Cherrapunji in K&J Hills and Tura in Garo Hills.

Forest and forest products are the chief resources of the State. Economic plantations of industrial and commercial use are being undertaken extensively. Meghalaya is rich in mineral resources which are virtually untapped because of transport difficulties In the organised sector, the main industrial unit in the State is the cement factory at Cherrapunji. The State Government has set up an Industry Development Corporation (MIDC) to promote, establish, undertake and implement industrial programmes having prospects of development in the region and also help the industries in the private sector. MIDC has secured nine licences and completed several feasibility studies. The ventures which are in the process of being set up include a tannery project, electronics project, the Meghalaya Metals and Minerals (P) Ltd., a roller flour mill, match splint, paper projects, cotton spinning mill, welded wire mesh and a hard bright wire unit.

Recently, the North Eastern Hill University has been set up at Shillong. Also, a number of colleges and a technical school are imparting training to Meghalaya State. The literacy in Meghalaya State is fairly high.

Mizoram

The Union Territory of Mizoram is bound by Cachar district of Assam in the north, Manipur in the north-east, Burma in the east, Bangladesh

in the south-west and Tripura in the north-west.

Paddy is the principal crop in the Territory. There is no major industry. Handloom and handicrafts are the only cottage industries. Communications have been a great problem.

Nagaland

Nagaland is bound by Assam in the north and west, Burma and Arunachal Pradesh in the east and Manipur in the south The population of the State is about 500,000

Agriculture is the main occupation of the people of Nagaland There is no major industry in the State Three major industrial projects have been taken up A sugar mill at an estimated cost of Rs. 40 million has been set up at Dimapur. A distillery unit, with a daily capacity of 1,000 gallons of alcohol, is also to be added to the mill. The second is a paper and pulp mill at Tuli in Mokokchung district with an estimated cost of about Rs. 360 million, a joint venture of the State and Central Governments The third is a plywood factory at Tijit in Mond district. There is scope for small scale industries, especially in the Dimapur area for producing light engineering goods

At Kohima, under the craftsmen training scheme, 16 mechanics can be trained for radio and TV work

Sikkim

Sikkim became a full fledged State of the Indian Union on 26 April, 1975. Sikkim is also an agrarian state. *It has an area* is 7,299 sq km with a population over 200,000 About a third of the area is covered by forest

The Sikkim Mining Corporation, Rangpo, set up in 1960, produces copper, lead and zinc The copper mine of Dikchu is under exploration The Government Institute for Cottage Industries set up in 1957 at Gangtok, encourages local handicrafts. Important industrial ventures include the fruit preservation factory at Singtam, the distillery near Rangpo and a tannery at Majhitar.

Owing to hilly terrain, two-thirds of the State has no proper road links. Therefore, the Public Works Department has now launched a massive programme for construction of new roads in the interior areas which has remained inaccessible so far In the field of communication, besides other expansion programme, a major event was the commissioning of the direct teleprinter line connecting Gangtok with Delhi and Calcutta

Tripura

Situated in the south-west of Assam, bordering Bangladesh, Tripura State is generally regarded as one of the inaccessible areas The State covers an area of about 10,500 sq km with a population of more than 1.6 million.

Over 60 per cent of the total geographical area of Tripura is covered under forests. Mineral occurrence of lignite coal, limestone and ochre have been reported, but these have yet to be commercially exploited

Tripura Government has also drawn up sericulture expansion schemes and cattle and duck-breeding schemes with the assistance of the North-Eastern Council There are two major industrial projects coming up in the State These are (i) paper and pulp project at Fatikroy near Agartala with an estimated investment of Rs 750 million, and (ii) the Rs 68 4 million jute mill of Tripura Jute Mills Ltd at Hapania near Agartala.

At Indernagar, Agartala, under the craftsmen training scheme, 16 mechanics are trained for radio and TV work

INCENTIVES FOR INDUSTRIAL DEVELOPMENT

Central Government Incentives*

As part of the measures to ensure balanced regional development, the Government of India has announced certain financial incentives for industries established in selected backward districts/areas. These are in addition to the facilities and incentives that are offered by individual State Governments In Hill areas, in addition to the incentives mentioned above in selected backward areas in them, certain transport subsidy is also provided. The incentive schemes for the hill areas as a whole, as announced by Government of India, are indicated below.

(1) Central Outright Grant of Subsidy Scheme 1971

The list of the hill areas covered under the scheme and the crucial date from which they will be eligible. (See Table 1)

Eligibility

Only those industrial units which were set up after October 1 1970, August 26 1971 or March 1 1974 or in respect of which effective steps were taken after the crucial date will be eligible. (See Table 1.).

Effective steps shall mean one or more of the following.

(a) Sixty per cent or more of the capital issued for an industrial undertaking, which is a public company within the meaning of the Companies Act, has been paid up

(b) A substantial part of the factory building has been constructed.

(c) A firm order has been placed for a substantial part of the plant and machinery required for the undertaking.

All industrial units including serving units, having fixed capital investment in land, building and machinery irrespective of the amount of their capital equipment, other than those departmentally run, whether in public or private/joint/cooperative sections are eligible

Existing units can claim subsidy for effecting substantial expansion after the crucial dates mentioned in so far as the expansion portion is concerned

Quantum

For claims relating to the period ending 28 February 1973, the subsidy will be 10 per cent of the fixed capital investment or Rs, 500,000, whichever is lower For claims relating to the period commencing from 1 March 1973, the subsidy will be 15 per cent of the fixed capital investment or Rs. 1.5 million, irrespective of the capital cost of the project, whichever is lower.

Income Tax Exemption on Subsidy

Capital subsidy disbursed under this scheme would not be taxable as income or revenue receipt in the hands of recepients

Procedures

The subsidy has to be claimed from the State Governments who scrutinise the claims through state level committees. The industrial units have to comply with the procedures and other requirements as devised by the respective State Governments.

However, the following general guidelines will be applicable.

(a) Units related to col 3 of Table 1 which took effective steps between the period 26 October 1970 and 26 August 1971 should have got

**Relevant excerpts from Guidelines for Industries 1976-77, Department of Industrial Development, Ministry of Industry and Civil Supplies, Government of India New Delhi.*

themselves registered with the State Authorities by 31 May 1972.

(b) Units related to col. 4 of Table 1 which took effective steps on and after 26 August 1971 should have got themselves registered by 31 December 1973.

(c) New units and units effecting substantial expansion should register themselves with the state authorities before taking effective steps for starting production or substantial expansion as the case may be.

(2) *Concessional Finance Scheme*

Coverage

A list of the industrially backward hill districts which qualify for this scheme is given in Table 2.

Under this scheme, Industrial Development Bank of India, Industrial Finance Corporation of India, and Industrial Credit and Investment Corporation of India extend financial concession in the form of low rate of interest, longer initial grace period and reduction of commitment charges, etc. The small scale units get these facilities through the State Financial Corporations while the medium and large scale units can apply directly to these institutions for concessional finance. The terms and conditions prescribed by each of these institutions are given in Appendix—I to III.

(3) *Transport Subsidy Scheme*, 1971

Area Covered

This scheme is worked out purely to give transport subsidy to all industrial units in hill areas, viz, Jammu & Kashmir, Assam, Meghalaya, Nagaland, Manipur, Tripura, Arunachal Pradesh, Mizoram, Himachal Pradesh and the hill districts of Uttar Pradesh.

Eligibility

All industrial units (barring plantations, refineries and power generating units), both in public and private sectors, irrespective of their size, are eligible for the subsidy. Expansion/diversion cases are also covered.

Quantum

It is 50 per cent of the transport cost of raw materials as also of finished products between the railway head at Pathankot or Jammu and the location of the industrial units whichever is shorter, in the case of Jammu and Kashmir, between Siliguri and the location of industrial units in the case of the north-eastern region, between Pathankot, Kirathpur Sahib, Nangal, Kalka, Ghanauli, Yamuna Nagar, Barara and Hoshiarpur and the location of the industrial units in the case of Himachal Pradesh; and between Dehradun, Rishikesh, Moradabad, Bareilly, Kotdwara and Shahjahanpur and the location of industrial units in the case of hill districts in Uttar Pradesh. No subsidy on internal movement within the State/area is allowed In the case of the north-eastern region, if the goods are moved entirely by road, the subsidy will be limited to the sum of road transport cost for that part of the journey for which there is no rail transport and the rail transport cost for that part which is connected by rail.

Procedure

The claims for subsidy should be submitted to the Director of Industries of the State concerned. The unit will have to fulfil the requirements of the State authorities as to pre-registration, application form, procedural requirements indicating the costs of transportation, etc.

TABLE 1

List of industrially backward hill areas selected to qualify for the Central Subsidy Scheme as on 21-7-1975)
districts/Areas Selected

Sl. No.	State/Union Territory	Upto 18-7-72 under the original form of the Scheme	After 18-7-72 under the extended form of the Scheme	Remarks
1	Assam	Goalpara, Mikir Hills	Cachar, Kamrup, Nowgong, New Lakhimpur	District of North Cachar hills not covered.
2	Himachal Pradesh	Kangra*	Chamba, Kulu, Sirmor, Solan (6th distt under consideration).	
3	Jammu & Kashmir	Jammu, Srinagar	Anantnag, Baramula, Doda, Poonch	About 75% of the population in the State covered
4	Manipur	All the five districts viz, Manipur North, West, South, Central, East	—	Entire State covered
5	Nagaland	Kohima, Mokokchung	Tuensang	Entire State covered.
6	Meghalaya	United Khasi & Jaintia Hills, Garo Hills	—	Entire State covered.
7	Sikkim	—	All the four districts of Gangtok, Gyalshing. Mangan & Namchi	Entire State covered
8	Tripura	Tripura West South, North.	—	Entire State covered
9	Uttar Pradesh	Balia, Jhansi.	Almora, Basti, Faizabad, Rai Bareilly	Only Almora district out of the districts of Uttar Kash, Chamoli, Pithorgarh, Tehri garhwal, Garhwal, Nainital & Almora declared as hill areas in UP The scheme covers about 14% area of the total hill areas in UP with only 23% of the population.
10	Arunachal Pradesh	—	Entire Territory	Entire Territory covered.
11.	Mizoram	—	Entire district excluding the area within the municipal limits of the Territory's capital.	Except for the municipal limits of Aizawal, entire Mizoram Territory covered.

*Represents districts as they existed prior to their recent reorganisation.

Note · In the case of districts/areas selected under the Original Scheme, the industrial units taking effective steps on or after 1 October 1970 would be eligible for investment subsidy

In respect of districts/areas selected under the extended form of the scheme, those industrial units would be eligible for the subsidy which take effective steps on or after 26 August 1971.

(4) *Special Tax Rebate for Industries Set up in Backward Areas*

Under a provision introduced in 1974, 20 per cent of the profits and gains derived from newly established industrial undertakings or hotel business in the backward areas are exempt from income tax. These exemptions are available for the first 10 assessment years of the undertaking, provided certain conditions are satisfied.

(a) The undertaking should not be formed by transfer of machinery and plant previously used for any purpose in any backward area

(b) It should employ 10 or more workers in a manufacturing process carried on with the aid of power or 20 or more workers where no power is used.

(5) *Concessions for Supply of Machinery on Hire Purchase by National Small Industries Corporation*

National Small Industries Corporation has reduced the rate of interest from 13.5 per cent to 11 per cent for supplying machinery on hire purchase to industrial units set up in backward areas. In the case of indigenous machinery, the earnest money to be deposited has also been reduced from 20 per cent to 10 per cent and to 5 per cent in the case of imported machinery.

(6) *Import Facilities for Units to be Set up in Specified Backward Areas*

The import policy has been liberalised to a very great extent for the import of raw materials, components and spares in respect of small scale units to be set up in hill areas listed in Table 1 The special facilities, among others, are:(i) all units in the nonselect list will be treated as select units, (ii) mode of financing in respect of these units would be 75 per cent free foreign exchange and 25 per cent in UK credit, and (iii) any unit whose entitlement works out to Rs. 20,000 will get the imported raw materials in free foreign exchange.

Such units will be eligible for preferential pricing in regard to the supply of canalised raw materials by canalising agencies against release orders, as if they are exporting units.

State Government Incentives

In order to attract new industries both in the hill as well as other backward areas, the State Governments in their respective regions operate various schemes of incentives/concessions These normally pertain to provision of essential infrastructure facilities like land, power, water, raw materials, etc., at concessional rates, subsidsing the cost of preparation of feasibility reports, provision of interest-free loans and marketing assistance, exemption from State sales tax and octroi duties besides providing technical guidance and training programme for new entrepreneurs. The quantum and value of these incentives offered by various State Governments differ from State to State considerably. A summary of their incentives Statewise is given below

North-Eastern Region

(1) *Arunachal Pradesh*

All the special incentives provided by the Central Government for setting up industries in selected backward areas and also by specialised financial institutions as given earlier, are available in the entire region of Arunachal Pradesh. Besides these, efforts are being made by the Administration of Arunachal Pradesh to accord maximum facilities to the local entrepreneurs like by way of protecting trading and other types of business activities only to the tribals. The Administration provides financial assistance by way of industrial loans upto a maximum of Rs 20,000 at 6 per cent interest. The other concessions include free registration of industrial units, procurement and distribution of scarce and controlled raw materials for industrial units in the Territory by the Industries Department and giving price preference including no sales tax) for the products of the Territory.

(2) *Assam*

In Assam, the districts of United Mikir and North Cachar have been declared as hill areas. Out of these, only Mikir Hills has been selected to qualify for Central Subsidy Scheme. However, both the districts qualify for financial concessions from financial institutions. The Central Transport Subsidy Scheme is applicable to the entire State.

The following are the institutions in the State providing assistance to the prospective entrepreneurs

(i) Assam State Financial Corporation (AFC)
(ii) Assam Ware house andMarketing Corporation
(iii) *Assam Small Industries Development Corporation (ASIDC)*
(iv) Assam Agro Industries Development Corporation
(v) Assam Government Marketing Corporation
(vi) Assam Industrial Development Corporation
(vii) Regional Research Laboratory, Jorhat

Land and building: Developed plots in selected industrial areas with infrastructure facilities, and built-up sheds in industrial estates are allotted to entrepreneurs on suitable terms and conditions. One such centre exists at Kalapur (Gauhati) When these are allotted on a long term basis, the State Government subsidises the rent upto 50 per

TABLE 2

List of industrially backward hill districts selected to qualify for concessional finance from the financial institutions (as on 3-1-1976)

Sl. No.	State/Union Territory	Districts	Remarks
1.	Assam	Cachar, Goalpara, Kamrup, Mikir Hills, North Cachar Hills, Nowgong and New Lakhimpur	Entire hill areas covered
2	Himachal Pradesh	Chamba, Kangra*, Kinnaur, Kulu, Lahaul and Spiti, Solan and Sirmur	—
3.	Jammu & Kashmir	Entire State	Entire State covered
4	Manipur	All the 5 districts	-do-
5	Meghalaya	Garo Hills and United Khasi & Jaintia Hills	-do-
6.	Nagaland	Kohima, Mokokchung and Tuensang	-do-
7	Sikkim	All the four districts	-do-
8	Tripura	All the three districts.	-do-
9.	Uttar Pradesh.	All hill districts (viz , Uttar Kahi, Chamoli, Pithorgarh, Tehri Garwal, Garhwal and Almora) except Nainital in addition to other backward districts/areas	Only Nainital amongst hill area-districts not covered.
10.	Arunachal Pradesh	Entire area.	Entire Territory covered
11.	Mizoram	Entire area.	Entire Territory covered

*Represents districts as they existed prior to their recent reorganisation.

cent for an initial period of 3 to 10 years depending on location.

Power : Power is supplied at negotiated rates to industrial units whose electric power cost constitutes a major item of the cost of production. In the case of units which would bring economic benefits to the State, the bulk concessional subsidy for power would be nine paise per unit.

Price preference: Price preference upto 5 per cent (15 per cent to SSI units) is allowed to local industrial products in all government purchases.

Tax concessions: Concession on merits is allowed in sales tax on industrial raw materials/finished products so as to enable local industrial goods to compete with those manufactured outside the State

Feasibility study: In respect of selected industries having definite prospects in the State, the State Government would have feasibility studies/project reports prepared through approved agencies. Project reports will be made available free of cost for small industries to deserving entrepreneurs with condition to implement the project within the stipulated time. The report on minor and medium industries will be made available at the reduction price of 50 per cent to 75 per cent of the cost of preparation

The Assam Financial Corporation (AFC) and the Assam Industrial Development Corporation (AIDC) provides financial assistance to new units in the form of loans and share capital. under the State Aid to Industries Act, the State Government and the ASIDC have a package scheme of incentives to new SSI units, under which loans are granted at concessional rate of interest (11 per cent per annum) besides providing finance for purchase of plant and machinery on hire purchase basis. AFC provides loans upto Rs. 3 million for companies and cooperatives and upto Rs. 15 million to non-corporate units, the interest rate varies between 10.5 and 15.5 per cent repayable in 10-12 years.

(3) *Manipur*

The entire State is eligible for concessional finance from the financial institutions and is also qualified for all the concessions offered by Central Government for industrial development in backward areas including transport subsidy

The State Government has constructed an industrial estate with built-in sheds at Takyelpat with all infrastructure and common facilities. Plots in this estate are allotted for industrial use with 50 per cent concession in the rent, power and water charges. Financial assistance under Small Scale Industries Loans Scheme and Rural Industries Project Scheme is provided by the Directorate of Industries in the form of soft loans and grants.

(4) *Meghalaya*

The entire State is eligible for concessional finance from the financial institutions and is also qualified for all the concessions offered by Central Government for industrial development in backward areas including transport subsidy.

Industrial estates are being constructed by the State Government at Shillong, Mendipathar (Garo Hills) and Burnihat (Khasi Hills) Plots/sheds are being offered to deserving industrial units on suitable terms. With a view to encouraging entrepreneurs from both within and outside the State, the Government of Meghalaya offers a package scheme of incentives which will be available for the setting up of new industries, as well as for expansion or diversification of existing industries in the private and cooperative sectors of the State The major incentives are detailed below

Refund of sales tax: For units with capital investment not exceeding Rs 10 million, the State Government refunds the sales tax paid by the unit on purchase of raw materials and on sale of finished goods for the first 5 years, subject to a maximum of 10 per cent of the value of investment in fixed assets in any one year

Subsidy on power tariff: Power intensive industries are supplied power at special concessional tariff rates. For all other new units, with capital investment not exceeding Rs. 10 million, the State Government subsidises all their power tariff payment over and above nine paise per unit subject to a maximum of nine paise per unit for the first five years.

Exemption from payment of royalty charges for water supply will be allowed for all industrial units for the first five years

Price preference in government's purchase programme is allowed upto 15 per cent of products manufactured by local units

Financial assistance · The Meghalaya Industrial Development Corporation (MIDC) helps in the promotion of industries both in the private and public sectors by providing feasibility study, raw materials, infrastructural requirements and other financial incentives. Government provides interest-free loans to industry to build their own factory sheds upto 50 per cent of the building cost, repayable in ten years. For technically qualified entrepreneurs, the State Government participates to the extent of 75 per cent in capital investment

(5) *Mizoram*

The entire Territory (except the municipal limit of Aizawal) is eligible for concessional finance from the financial institutions and is also qualified for all the concessions offered by Central Government for industrial development in backward areas including transport subsidy

Mizoram has not made much headway in the industrial sector However, after the formation of the Union Territory, things are changing fast. Industrial plots aretnow available in the industrial estate of Aizawal and Lunglei. Efforts are being made to provide all infrastructural facilities to the constituent units in the estates.

At the state level, the important institution providing facilities for industrial development by way of financial assistance is the State Directorate of Industries which provides loans (i) for creating fixed assets from Rs 2,500 to Rs 20,000 and (ii) for providing working capital upto Rs 50,000 for various industries In addition to loan assistance, the Directorate of Industries assists entrepreneurs in a number of other ways such as registration of small scale units, procurement of scarce raw materials, grants-in-aid in cash and kind, 50 per cent subsidy on tools and machineries and also training of artisans in other States by providing suitable stipend. There is no production tax or sales tax or octroi in the whole of Mizoram

(6) *Nagaland*

All the special incentives provided by the Central Government for setting up industries in selected backward areas and also from the Specialised Financial Institutions as given earlier in this section are available with the entire State of Nagaland.

Factory plots/sheds are available on concessional rent in the industrial estate at Dimapur Industrial estates are also proposed to be built in all important towns in Nagaland. Electricity rates beyond 9 paise per

unit are subsidised for all consumers having electric motors upto 30 HP. The Nagaland Government also offers upto 15 per cent price preference in Government's purchase programmes to small scale units. Detailed project schemes are supplied free of cost or at nominal price by the Department of Industries Loans upto Rs 20,000 are granted by the Department of Industries at 6 per cent interest whereas loans exceeding Rs 20,000 are granted by Assam Financial Corporation which has extended its jurisdiction to Nagaland Grant-in-aid from Rs. 200 to Rs 2,000 are given to deserving cottage units Tax incentives like exemption of sales tax is being considered by the Government

(7) *Sikkim*

The entire State is eligible for concessional finance from the financial institutions and is also qualified for all the concessions offered by Central Government for industrial development in backward areas including transport subsidy.

Basic infrastructure like road, communications, etc., are being made available by the State The State Bank of Sikkim has started the scheme of providing loans for the promotion of agriculture, development of small scale industries and other state development activities. Other incentives are being evolved by the State

(8) *Tripura*

The entire State is eligible for concessional finance from the financial institutions and is also qualified for all the concessions offered by Central Government for industrial development in backward areas including transport subsidy

Three industrial estates have already been developed in Tripura at Udaipur, Arundhutinagar and Kamarghat. Development of another industrial estate is also envisaged at Dharmanagar near the trijunction of Tripura, Cachar and Mizo Hills of Assam The industrial units in the proposed estate would cater for the requirements of a much bigger area. Concessional industrial site, power, financial assistance/loan, marketing assistance, 15 per cent price preference to SSI, etc., are provided by the State to grow industry in Tripura.

GUIDELINES FOR THE GROWTH OF ELECTRONICS INDUSTRY IN HILL AREAS

It has been brought out in the preceding sections that the main reason for the industrial backwardness of the hill areas is their geographical parameters which has a close bearing on the level of infrastructure that is available and that could be made available. The principal objectives of industrial development in India all along have been the regional balance or equitable participation by all regions in the process as well as benefits of development To bring the hill areas at par with the other regions in the country, the Central Government as well as the various Hill States Governments are providing specific incentives to grow the necessary industrial base in the hill areas. Also given in the preceding Sections are the projects initiated by the Central Government and the State Industrial Development Corporations in their respective States

Most of the hill states/areas, it may be noted, are rich in various types of forest, and the economy is mostly agriculture-based. Further, these States are rich in certain kinds of minerals. Therefore, the earlier survey carried out for identifying suitable industrial activities for growing in hill areas by leading financial institutions in the country (IDBI, ICICI, IFCI and others), NIDC amongst others, have mostly suggested those activities which are based on natural resources available in those particular regions. Therefore, such recommendations tend to be in favour of forest-based, mineral-based, agro-based industries, etc. Electronics naturally does not fall under this category In this Section, an attempt is made to suggest some of the areas in electronics which can be grown in hill areas by taking maximum advantages of the incentives provided by Central/State Governments for growing industry in these regions. Also, some suggestions are made for promoting the electronics industry entrepreneurship and awareness

Electronics Activities Identified by Hill Areas

With the incentives provided by the Central Government to grow industry in selected backward areas by way of direct capital subsidy (which covers almost the entire hill areas in north-eastern region with the only exception of North Cachar district in Assam, 75 per cent of the J & K population, and a significant fraction of HP), concessional financial schemes in selected areas (covering almost the entire hill areas) and transport subsidy (also covering almost the entire hill areas) and the incentives provided by State Governments such as concessional land, power and water, soft loans, price preference, sales tax and other tax concessions, technical assistance, etc., it is felt that there are some areas in electronics given below (Category I) which are well within the entrepreneurial capabilities of qualified electronics engineers to grow in hill areas and complete at least in local markets with those manufactured outside the hill areas and brought over there for marketing For the market outside the hill areas, some items which require relatively low technology and are of high cost and low weight have also been identified (Category II). There could also be another category (say, Category III) where electronics items of highly professional nature are included and the investment is also rather high. This would include relatively sophisticated instruments, computer peripherals, communication equipment, defence electronics systems, industrial and control systems. However, decision for locating these type of industries give due regard to the requirements of level of skill and infrastructure demanded by the processes and technologies involved for the manufacture of these items which are fairly high In the following, the discussions are restricted to Category I and III.

Category I

Notwithstanding the lack of elaborate infrastructural facilities, it is felt that the hill areas have a potential to sustain electronics industry in the small scale sector, manned by locally available skills and set up with the basic intention of selling the products in the local market. In view of this, the candidate projects which present themselves are in the sector of consumer electronics, viz., manufacture of radio receivers, cassette tape recorders and TV sets. (For the North-Eastern region there is a possibility of exporting radio receivers to the neighbouring countries, viz., Bangladesh, Burma and Nepal. This should be given a secondary importance—a potential for eventual exploitation.) The manufacture of these items is essentially an assembly operation where the requirement is primarily for the semi-skilled labour. This type of labour force could be trained in about 2-3 weeks period as it does not require any formal

training in the field and manual skills and tricks-of-trade are the key to success. The skilled labour could be drawn upon the trainees passing out of the Industrial Training Institutes and polytechnics with specialisation in the trade of radio/TV technician (given in Section III) The overall co-ordination has, of course, to be done by a qualified engineer which in this case could as well be, the basic qualification for entrepreneurs To bring out the feasibility of growing small scale units in the sector of consumer electronics, some working financial/technical details are given in the following; an estimation of the demand of radio receivers/TVs in hill areas have also been made.

(1) *Assembly of Radio Receivers*

Manufacture of domestic radio receiver is a delicensed item since all the components/raw materials required for it are available indigenously. The requirement of capital goods is also limited and they are all being manufactured in the country Salient features of the capital equipment and component/raw materials requirement for assembly of radio receivers are given below.

Capital equipment: Standard signal generators, oscilloscopes, VIVM, multimeter, winding machines, drilling machines, hand tools, etc.

Component/raw materials: Resistors, capacitors, gang condensers, transistors, diodes, PCB, IF transformers, coils, loudspeaker, ferrite antenna, knobs, band switches, indicator, cabinet, etc The raw material cost in the case of single band radio receiver is about Rs 50 (with about 2"-3" speaker) and for 2-band model is of the order of Rs 80.

For a notional level of production of about 10,000 radio receivers per annum, the requirement of the capital equipment together with the working capital amounts to Rs 200,000.

Manpower requirement : Staff requirement is about 80 inclusive of indirect labour. Of the 30 employees, only about 5 need be of the skilled category.

(2) *Assembly of Cassette Tape Recorders*

For the assembly of this item, the ITC policy allows for imports worth Rs. 40 cif per tape recorder. The major items being imported are tape deck mechanism and condenser microphone. However, with the indigenisation of tape decks, import requirement would substantially reduce. Capital requirement and raw material/component requirements for the assembly of tape recorders are given below.

Capital equipment : Sound level meter, oscilloscope, audio frequency generator, tachometer, multimeter, hand tools

Raw material/components

Imported—(i) Tape deck mechanism

(ii) Condenser microphone

Indigenous—Transistors, resistors, capacitor, PCB, speaker, transformer, cabinet, wires, mechanical components, metallic hardware, etc.

The total cost of components for a cassette tape recorder is estimated to be Rs. 350 For a notional capacity of 5,000 cassette tape recorders per annum, the total investment is estimated to be about Rs 700,000.

Manpower requirement : Total manpower required for the above-mentioned level of production is about 35 persons of which only 5 to 7 need be skilled, the remaining being either semiskilled/unskilled or the clerical staff.

(3) *An Estimate of the Demand of Radio Receivers/TVs in Hill Areas*

In order to provide guidelines to the entrepreneurs for the numbers of radio sets/TVs which are likely to sell in hill areas, a first order analysis of the demand in the hill areas has been carried out. It is described regionwise below.

North-Eastern Region

The North-Eastern Region which consists of the States of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim is largely covered by the primary service of one channel only. Currently, radio transmitters are located at Gauhati, Shillong, Kohima, Imphal, Dibrugarh, Silchar, Passighat, Tezu, Aizawal, Tawang and Itanagar. Low power transmitters which operate on different power, during day and night are 8 in Assam, 8 in Arunachal Pradesh, 5 in Manipur, 3 in Nagaland, 2 in Meghalaya, 2 in Mizoram and 3 in Tripura.

With the completion of some of the schemes now in progress, it is expected that 90 per cent of Tripura, Arunachal Pradesh and Mizoram would be covered.

The total population of the north-eastern sector is estimated to be about 20 million of which only about 10 per cent is urban. The number of licensed radio receivers stood at 200,000 as in December 1975, amounting to one set per 20 families and is amongst the lowest in the hill areas. Through promotional efforts a demand of about 40,000 sets/annum could materialise, and about 5-6 units in the small scale sector could easily be sustained.

(4) *Ancillary Units*

Once the electronics units suggested under Category I go in operation, there may be a necessity to grow ancillery industry around such units. These would require units to manufacture transformers, chokes, coils, knobs, chassis, cabinets, nut, bolts and screws, telescopic aerials, electroplating and polishing units As the necessary infrastructure would be available at the industrial estates planned in the various states, setting up of these ancillaries may not be a problem Once the demands of Category I items pick up, it may be possible to manufacture gang condensers and loudspeakers to cater for the local manufacturing units and eventually to units operating outside hill areas.

Category II

In this category, an attempt has been made to identify those electronic items which are essentially assembly type, do not require high skill or large investments and at the same time are high-cost, low-weight items. With the incentives provided by the Central and State Governments including transport subsidy, it may be possible to take advantage of their relatively high-cost and low-weight nature and compete with other manufacturers elsewhere even though the local demand may be relatively low. These items may require access to elaborate testing facilities which could probably be provided by the Centre as proposed later in this report. Such items include, (i) multimeter—analog as well as digital type, (ii) panel meters for various applications, (iii) hearing aids. (iv) pocket calculators, and (v) other items which require similar type of assembling and testing operations.

Current Status of Electronics Industry in Hill Areas

In the north-eastern region, there is hardly any electronics unit which is operating at present. Recently, the Government of Meghalaya has decided to set up an electronics industry (radios and tape recorder) at Shillong. Other projects are also being attempted in Meghalaya. Assam Government has also set up a board to draw up projects and prepare feasibility studies specifically for electronics items. As for the availability of trained manpower, the engine-

ering colleges at Jorhat and Gauhati are offering electrical engineering courses which include some aspects of electronics Radio & TV mechanics are available from the ITIs based at Gauhati, Manipur, Nagaland and Tripura as discussed in Section III of the report.

The engineering college at Srinagar is also training engineers in the areas of electronics

Need for Forest Instrumentation and Service Centre

Forests have a prominent role in maintaining the ecological balance The percentage of forest area in the country, which is about 23, is rather low compared to most of the countries in the world. The National Forest Policy, revised in 1952, lays down that the area under forests be steadily raised to 33.3 per cent of the total geographical area Moreover there is a need to monitor the growth of these forests, which in no case should be left to itself. It is apparent that under natural forest conditions, trees that survive and reproduce themselves are those that are best suited to compete and reproduce under the local natural environment. Though these trees are good competitors, they are often not the most desired. In an intensively managed forest, less emphasis is placed on the ability of trees to survive and thrive under unfavourable conditions and enough thought is given to the qualities and economic value of the product that is grown As the hill areas are to a large extent covered by forests, they are the potential centres where units could be set up to monitor and harness the forest wealth The fraction of the geographical area in various hill states covered by forests is summarised in Table 3 As electronic instruments can play a vital role in (i) assisting to monitor the growth of forests, (ii) measurement of parameters connected with soil, (iii) measurement and control of aerial environment, etc, it is felt that on an experimental basis a "forestry instrumentation laboratory and service centre" may be set up in the state which have dense forests of economic value. This unit could later on take up custom manufacture of these instruments and subsequently, if economically viable, take up their manufacture as well. The various electronic instruments which may find use are temperature measuring, humidity, soil water content, salinity meters, seed testers etc.

The proposed centre or similar body should also be set up in the northern hill areas like Himachal Pradesh and Jammu & Kashmir.

APPENDIX I

Concessional Finance by Industrial Development Bank of India, Bombay

Assistance on Concessional Terms to Industrial Projects in Backward Areas

(1) IDBI has recently reviewed its concessional direct assistance schemes It has decided to extend concessional rupee loan assistance upto Rs 20 million and underwriting assistance upto Rs 10 million in participation with other term financing institutions (IFCI and ICICI) to new concerns setting up projects in specified backward areas, irrespective of their product cost The assistance in excess of the above ceiling would generally be extended on normal terms, though exceptions may be made in special circumstances on the merits of each case.

(2) Concessional finance for expansion/diversification projects in identified backward districts undertaken by existing concerns would be considered on selective basis, keeping in view the profitability potential of the existing and proposed new projects, location of new projects and other related factors

(3) Concessional loans will carry interest at 9 5 per cent, as against the normal lending rate of 11 per cent per annum The rate of underwriting commission in respect of concessional underwriting would be 1.25 per cent, as against the normal rate of 2.5 per cent.

(4) Concessional financial assistance was hitherto available generally to new projects involving capital cost upto Rs 30 million and to expansion/diversification scheme of existing units with total investment (i e net fixed assets plus net working capital of the existing unit and cost of expansion project together) upto Rs 30 million Under the present liberalisation, new projects which involve capital cost of more than Rs 30 million would also get the benefit of concessional assistance upto Rs 20 million for loans and Rs 10 million for underwiting.

(5) The IDBI also extends concessional refinance assistance at 6 per cent in respect of all eligible loans of SFC, and banks upto Rs. 3 million to small and medium sized projects in the specified backward areas, provided the paid-up capital and reserve of the assisted industrial concerns do not exceed Rs. 10 million and the primary lending institution does not charge more than 9.5 per cent.

APPENDIX II

Concessional Finance by Industrial Finance Corporation of India, New Delhi

The Industrial Finance Corporation of India (IFCI), in supersession of its earlier announcements made in July 1970 and January 1972, has decided to liberalise and enlarge the scope of the scheme of financial assistance on concessional terms to industrial projects in such areas. The scheme would now cover all industrial projects—new, expansion or rehabilitation—in the corporate as well as cooperative sectors, irrespective of their capital cost, the principal features of the revised scheme of concessional finance for units in identified underdeveloped districts/areas would be as under.

(1) *Location*

All industrial projects located/to be located in the districts in the various states or union territories selected for such assistance by the Central Government from time to time would be eligible for assistance on concessional terms.

(2) *Scope of the Scheme*

Concessional finance would be extended to all projects—new and expansion—both in the corporate (limited companies) and cooperative sectors. Concessional terms would also be made applicable to assistance granted by IFCI by way of rehabilitation finance to units located in notified underdeveloped districts on the same basis as applicable to new and expansion projects

(3) *Ceiling on Assistance*

The overall ceiling in respect of rupee loans on concessional terms from IFCI individually, unless other institutions also participate and extend concessional finance upto Rs 20 million on a prorata basis, would be Rs 10 million. The sum of Rs 10 million would, however, include outstanding rupee assistance, if any, already on concessional terms. Underwriting assistance from the term financing institutions including IFCI would be made available at concessional terms upto a ceiling of Rs. 10 million in the aggregate, irrespective of the cost of the project.

(4) *Terms*

(i) Rate of interest: As against the normal current rate of interest at 12 per cent (with a rebate of 1 per cent for punctual payments of instalments of interest and princi-

TABLE 3

Forest wealth of some hill areas

States/Union Territories	Total area (sq. km)	Area under forest %	Principal forest products
North-Eastern			
1. Arunachal Pradesh	83,578	72 9	Bamboo, pine.
2. Assam	78,523	21 7	Timber, bamboo, reeds, medicinal herbs, lac, cane, etc
3. Manipur	22,356	36 8	Timber, bamboo, cinnamon.
4. Meghalaya	22,489	NA	NA
5. Mizoram	21,087	20 0	Timber, bamboo, cane, agar.
6 Nagaland	16,488	17 6	Timber
7 Sikkim	7,299	33 0	Sal, conifer
8. Tripura	10,477	60 0	Bamboo
Northern			
1 Himachal Pradesh	55,673	38 3	Timber, fuel wood, gums, resin
2 Jammu & Kashmir	2,22,236*	17 0	Timber, fuel wood
Total	32,80,483	22 7	

**Source* : India 1976 (A Reference Annual).

pal,) a lower rate of interest i e 10.5 per cent (with a rebate of 1 per cent) would be charged on loans to eligible industrial projects in backward areas

(ii) Period of repayment of loans: IFCI's normal practice is to allow initial moratorium upto 3 years to an assisted concern before the repayment of the principal amount of the loan commences. In the case of undertakings in the underdeveloped areas, this period would be extended upto five years from the date of first disbursement of the loan, on a case to case basis, having regard to the projections of profiability and ways and means position of a concern. Likewise, against the normal period of 10 to 12 years allowed for repayment of loans, the period in the case of projects coming up in underdeveloped areas may be extended upto 15/18 years on the merits of each case having regard to the concern's profitability potential and cash flow position.

(iii) promoter's contribution and equity, debt ratio: A lower contribution than the usual by promoters to the total project cost and somewhat liberal equity debt ratio would be considered on the merits of each case having regard to the financial status and standing of the promoters' gestation period of a particular project, its profitability potential and other relevant factors.

(iv) Participation in equity and preference capital: Depending on the merits of each case, IFCI would be prepared to consider participation by way of underwriting or otherwise in the share capital of an industrial concern located in underdeveloped areas to a greater extent as compared to projects located elsewhere.

(v) Reduction in other charges: Fifty per cent reduction would be made in IFCI's normal charge in respect of underwriting commission commitment charge, non-refundable examination fee for processing of applications and legal charges.

APPENDIX III

Concessional Finance by Industrial Credit and Investment Corporation of India Limited

Concessional Terms for Assistance Provided by ICICI in Backward Regions

(1) Rupee loan assistance to new concerns for projects in specified backward districts will be made available at a concessional rate of interest of 9.5 per cent and commitment charge of 0.5 per cent upto a ceiling of Rs. 20 million of the total term loans provided by the IDBI, IFCI and ICICI, irrespective of the cost of project. The concessional rate of interest for foreign currency loans (within the limit of Rs. 20 million) is 9.5 per cent. Loan assistance above an aggregate of Rs. 20 million will be made available at normal rates.

(2) Underwriting assistance to new concerns for projects in specified backward districts will be made available on an underwriting provided by institutions, irrespective of the cost of product. Underwriting assistance above an aggregate of Rs. 10 million will be made available on normal terms.

(3) The distribution of the loan and underwriting assistance on concessional terms amongst institutions would be made within the above limits on a case to case basis.

(4) Relaxation regarding debt equity ratio, initial moratorium and repayment period for projects in specified backward districts be considered on a case to case basis.

(5) Concessional finance for projects in specified backward districts to be set up by existing concerns by way of expansion/diversification will be considered by the institutions on selective basis. ❑

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(6) Times of India Yearbook 1976.
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Yojana Quiz

1. The first government telegraph line was opened in 1851 between
   (*a*) Calcutta and Delhi
   (*b*) Calcutta and Bombay
   (*c*) Calcutta and Diamond Harbour
2. Who are the authors of the following books
   (*a*) Glimpses of World History
   (*b*) Kim
   (*c*) Raghu Vamsa
   (*d*) Gora
   (*e*) Wasteland
3. What is Light Year?
4. How is it that food gets cooked quicker in a pressure cooker than in an ordinary vessel?
5. Why water gets cooled in earthen pitchers?
6. Longest river in the world is
   (*a*) Missouri-Mississipi
   (*b*) Congo
   (*c*) Nile
7. Largest island in the world is
   (*a*) Greenland
   (*b*) Great Britain
   (*c*) New Guinea
8. The only one lead smelter in the public sector in India is at
   (*a*) Salem
   (*b*) Calcutta
   (*c*) Tundoo
9. Where does one come across with the following dances in India?
   (*a*) Thutotdam
   (*b*) Sanjenba
   (*c*) Kuravanchi
   (*d*) Bhangra
10. The Legislative Council of Arunachal Pradesh was inaugurated on
   (*a*) 26 Jan 1975
   (*b*) 15 Aug. 1975
   (*c*) 2 Oct. 1975
11. Where was the 33rd World Table Tennis Championship held and in which year?

ANSWERS

1. (*c*) Calcutta and Diamond Harbour. 2 .(*a*) Jawaharlal Nehru, (*b*) Rudyard Kipling, (*c*) Kalidas, (*d*) Rabindranath Tagore, (*e*) T.S. Eliot
3. It is an astronomical measure of distance, i.e the distance travelled by light in one year.
4. The boiling point of water (or any other liquid) depends upon the pressure on its surface. Steam produced inside the cooker builds up pressure, thereby raising the boiling point of water, which results in quick cookin g. 5. Water evaporates through the pores of the earthen pitchers. The heat energy required for the evaporation process is taken from the water molecules. Thus the temperature of the water is lowered 6. (*c*) Nile - 4,000 miles. 7. (*a*) Greenland - area 827,300 sq. miles. 8. (*c*) Tundoo (Bihar) - based on the Zawar ore deposits

9 (*a*) A Mask dance in Tawang area in Arunachal Pradesh, (*b*) Popular dance opera of Manipur, (*c*) A dance drama of Tamil Nadu with Bharat Natyam as the base, (*d*) Harvest dance of the Punjab. 10. (*b*) 15 Aug. 1975. 11. The 33rd World Table Tennis Championship was held at Netaji Stadium, Calcutta in February, 1975.

Justice is the very condition of human survival Its denial will be an invitation to violence

* * *

Those who produce and exchange industrial goods must learn not to do violence to the balance of nature and balance of the human being.

—Indira Gandhi

* * *

No culture of any society can remain isolated That is why there are always new frontiers of study for archaeologists and anthropologists. Even before the advent of writing, cultural interchange was occurring on a scale that defies the imagination of modern man. It is the impact of continuing external stimuli, the influence of some degree of cultural interchange that has caused the culture of every society in every age to develop.

—Chie Nakore in Monthly Digest on Japan

* * *

Man has the fundamental rights to freedom, equality and adequate conditions of life in an environment of quality which permits a life of dignity and well-being.

—A.N. Ray
Chief Justice of India

* * *

There is no doubt that Indian cricketers are suffering from an over-dose of the game.... Victory and defeat are important, but not as important as the players.

—The Hindu

* * *

She (Indira Gandhi) is one of the best politicians I have ever known and she works very hard She keeps her finger on the nation's pulse more than most leaders, I've observed in other countries.

* * *

As for ordinary Indians I've never been better treated at any place in the world

—William B. Saxbe
former U.S. Ambassador to India.

* * *

The good old days when small talk flowered to the strains of the Shehnai and Sitar are gone forever. Buffet meals and bluff statements are the order of the day

—Editorial in The Times of India

Psychology of Freedom

Books

The Psychology of Freedom by Krishna Chaitanya : *Somaiya Publications, New Delhi* . (*Pages XIII+348 Price* · *Rs 75.*

HUMAN THOUGHT HAS for centuries been dominated by a materialistic metaphysic, largely based on classical physics In this metaphysic all reality is corpuscular and all change mechanical. It does not admit purpose or telos as an ontological category but views it as a merely contingent phenomenon with no casual importance.

Recently however many sensitive minds have come to question the validity of this metaphysic, as much for its failure to explain the many new dimensions of reality revealed by science as for the cramping effect it has on human initiative. In his five-volume magnum opus Krishna Chaitanya attempts to survey and sum up this vast and beneficient change in human thinking. No greater tribute can be paid to this, the third volume in the series, than to say that it is a worthy successor to the two earlier volumes

Krishna Chaitanya continues here his sustained campaign against mechanomorphism He shows how Polanyi, Chardin, Chomskey, Maslow and other outstanding modern thinkers confirm and clarify the insight of the Upanishadic seers that reality is dynamic and that the principal driving force in nature, the principal agent of change, is "freedom" or internal determinism—a kind of teleonomy or imminent causality—and that this is true as much of inorganic material systems as of man, as much of subatomic particles as of the cells in the neocortex.

Developing this *weltanschauung* in a comprehensive and ambitious project encompassing a wide variety of disciplines, Krishna Chaitanya here establishes his Philosophy of Freedom on modern psychology, having already dealt in earlier volumes with physics and chemistry and biology.

Psychology, as a science, is of comparatively recent origin. In fact it was not until the last quarter of the nineteenth century that Wundt, William James, Titchner, Fechner and Helmholtz thought of applying laboratory techniques to the study of mental phenomena It was only to be expected that in its early stages it should reflect the temper, the predilections and prejudices peculiar to the age that gave it birth, which was an age of 'determinism', of causal laws of eternal and universal applicability

In the present work Krishna Chaitanya critically examines the chief deterministic formulations in psychology and demonstrates, by compelling argument supported by evidence from innumerable workers in the field, that these formulations, besides being counter-productive, are unfounded in fact in their premises and unwarranted in their conclusions. Krishna Chaitanya's commitment is to freedom. He however does not start with the postulate but presents it as a colligative and conclusive judgement.

In his voyage into the psychology of freedom, the author comes up first against the Associationists and Behaviourists, the Parallelists and Epiphenomenalists, who hold either that there is no mind and no consciousness or that these are quite independent of the body, so that between mental events and neural events there may be some correspondence but no causal relation.

As against these schools Krishna Chaitanya affirms that the self, mind and consciousness exist; that consciousness is not a substance but a function—a function of the brain and the nervous system as a whole and not of this or that part of the structure, as has been proved by the experiments of Sperry, Penfield and others in such disorders as aphasia, alexia and agnosia; that the totality of the working all neural structures is the mind and that the integrating principle behind the workings of thought, its nuance and colour and the very sense of its intentionality, is due not to the neural pattern of which it is a function but to "an integrating, intending self." It is the self that "reads the meanings signalled in by the external world through the sensory channels" and integrates them "to drive towards a fresh reach of meanings and values".

As against Watson, Skinner and others for whom psychology is no more than behaviour, which itself is no more than the organism's reaction to environment, even thought being merely subvocal speech, a function of the vocal chords, the author shows that behaviour, especially in its higher reaches, is organised, directional activity, involving motivation, reasoning, decision making This is true of behaviour even at the reflex level. In man it is also influenced by memory and anticipation and thus spans a time segment. It further involves the whole of the organism as a unity and is molar, not molecular, in structure as Tolman and various other researchers have conclusively demonstrated

Krishna Chaitanya has devoted much space to a critique of the theory of psychoanalysis. He acknowledges Freud's great contribution towards an understanding of the psychical processes involved in mental illness and abnormal behaviour, but he points out that psychoanalysis, based on nineteenth century physics, is a closed system, essentially deterministic and pessimistic; that useful as it has been in therapy and in clarifying the workings of the mind at the appetitive level, it provides no help in understanding the higher psychisms operating at the ideational level. The basic fallacy of Freudian thought lies in its postulating the unconscious as the prime determinant of character and behaviour in man and in its regarding the human situation as one of conflict: conflict between the instinctual drives—dark, violent and quite beyond reach except when and to the degree made accessible by analytical therapy—seeking expression and fulfilment and the system of checks and taboos devised by social culture. It is thus a case of the mind confronting the mind and not one of the mind confronting the environment, and what essentially are instances of maladjustment and dysfunction are raised to the status of governing principles.

But the outlook is no longer as grim as it used to be. The Gestalt, the Phenomenalist and the Existential schools of psychology, for instance, totally deny that the unconscious plays the role that Freud assigns to it. They refuse to regard man as an arena of perpetual conflict between libidinal forces and the ego organization. They insist that man is primarily a being, system of *potentialities* that are struggling for actualization, and that it is this conatus for the realization of his possibilities, for becoming other than what he is, for overcoming and transcending himself at each step, that is the decisive element in the dynamics of the mind. This of course argues freedom of choice between alternative courses of behaviour, operation of volition of *liber arbitrium*. And that is the point that Krishna Chaitanya makes.

But if freedom is a reality, if the ego is an autonomous energy system, it goes without saying that it has a much greater role in sickness and health than has been conceded to it by reductionist psychological theories. A large share of the responsibility for dysfunctions and abnormalities of all kinds that have so far been regarded as the area of manipulative therapy thus comes to rest with the individual. The unconscious is a force from the past and, unless the ego chooses to throw up the sponge, there is no reason why the past of a man should imprison not only his present but also his future. This has a further implication. A man will be what he makes of himself.

This making something of oneself, this perpetual exploring of possibilities in a field of value systems, this pursuit of what Maslow calls "being needs" as contrasted with "deficiency needs" is the key factor in the understanding of man as man.

One may legitimately expect this massive work to bring about far-reaching changes in psychological thought, for the writer is an outstanding scholar and thinker who combines encyclopaedic erudition with the insight of a seer

—J.P. Uniyal

Emporium of Trade

Surat and its Trade in the Second Half of the 17th Century *by Dr. O.P Singh, University of Delhi*, 1975; *Pages VIII* + 223; *Rs* 50.

THE ECONOMIC history of the West Coast of India during the last three centuries has always been a field of special interest to historians in India and abroad. Whereas a good deal has already been written about the operations based on Malabar Pepper trade, the story of trade links with Surat had remained to be studied. This doctoral thesis of 1964 has appeared never too late to enable interested scholars in piecing together the story during a crucial period of contact with European Colonial powers.

As a study in depth, the author has concentrated on the activities of the English, Dutch and the French in Surat and delineated the economic conditions that prevailed during the period 1650-1700 A.D. He has credited the Mughals with a high degree of skill in playing one European power against another in ensuring safe passage to the pilgrims proceeding to Mecca. Those who are familiar with the activities and internal interferences of the European factors in Kerala principalities during this period and subsequent decades cannot fail to attest the painstaking amount of research that has gone into the writing of this thesis. However, they would all the same be disappointed at the lack of larger perspectives in the treatment of the subject embracing Surat-based activities on the West coast and across the ocean to African countries. There is also lack of sophistication in arriving at historical deductions Economic history can hardly be delimited to a bland narration of facts or presentation of other's views It will be readily admitted that this requires also a synthesis, apart from an imaginative involvement with the events of the past as were enacted in a milieu different from that of the writer himself. This shortcoming is patent due evidently to the lack of acquaintance betrayed with the interpretive studies that have already appeared on colonial history. However, while as a focussed study it retains its definite value with a good coverage of source materials, as a doctoral thesis both its reasoning and analysis of facts, are palpably weak and inadequate

Finally, it is not perhaps out of place to comment that the writing of economic history has increasingly become an interdisciplinary effort and in this respect interuniversity collaboration is an essential postulate for its success. While University of Delhi deserves compliments for publishing this thesis, both the author and his readers might have benefited through this process The book might have also shed light on the migration and Surati Muslims and Hindus to East Africa, Madagascar and Zanzibar It is to be hoped that the author himself would come out with a fresh study on the subject before long

—B.N. Nair

Principles of Foreign Exchange

Foreign Exchange : Principles and Practice *by K K Andley; Sultan Chand and Sons; New Delhi* 1976; *Pages* 462; *Rs* 16.

A BOOK WITH 492 pages (including 12 pages of contents etc) with 97 tables and/or tabular calculations, composed in various points of letters would certainly not have been available for just Rs 16.00 had the publishers not got the printing paper at a concessional rate from the government under the new economic programme.

The book is popular and has already proved its usefulness among the students It is evident from the fact that almost every year a new edition has been brought out (first edition was published in February 1971 and the fourth one in 1976). The author, as he himself has admitted in the preface, has done a lot of alteration and additions to make the book comprehensive. He has compiled information on various rules and regulations governing foreign trade. He has tried to make it as uptodate as possible.

The book is divided into five parts. Each part deals with the main department of foreign exchange and

various principles involved in it. First part deals with foreign trade and foreign exchange. This is further divided into sub-parts. These contain everything about foreign trade and international payments; means and methods of international payments; theory of foreign exchange, fluctuations in foreign exchange rates; foreign exchange transactions; foreign exchange maxims and terminology; forward exchange; forward exchange markets; foreign exchange markets, exchange control and other policies Second part contains descriptions of international institutions and agreements like the International Monetary Fund; International institutions and agreements like the International Monetary Fund; International Bank for Reconstruction and Development, General Agreement on Tariffs and Trade (GATT) United National Conference on Trade and Development (UNCTAD). Various international monetary problems have also been dealt with in this part of the book. The latest among the crises the Oil crisis and petro-dollars have been well explained The problems relating to Indian foreign exchange have also been dealt with. Financial facilities for promotion of export trade of India have been dealt with in detail in the fourth chapter of this part. Part three deals with various functions of the foreign exchange departments "of the commercial banks; various documents and their format have been explained in a total of five chapters of this book. Part four delas with only one aspect i.e. current exchange and trade control in India. Part five relates to this Exchange Arithmetic wherein solved examples for calculations of various values required in foreign trade have been demonstrated.

The questions at the end of each chapter and the hints where the correct answers to the questions could be found in the book is a sort of spoon-feeding for the students It would have been better if the stuents were left to find them out at the proper position of the chapter.

Except a few printing mistakes the overall get up of the book is good On the whole it is a useful book from the point of view of the students as well as the layman

—**Dr. M. M. Mathur**

Future Trading

Economics of Hedging, : by M.V. Pavaskar *Popular, Bombay,* 1976; *Pages xii — 144; Price Rs.* 30

THE IMPORTANCE of futures trading arises mainly from the function of risk-avoidance it is said to perform Market mechanism involves risks of adverse price fluctuations, particularly in agricultural commodities which are harvested seasonally while they are consumed, and therefore marketed, round the year. The futures market device was evolved to avoid and minimise such price risks—hedging is the process through which price risks are avoided or reduced.

However, the author of the book does not labour under any illusion The concept of heding as well as hedging practices of trade and industry are not static, rather they change from time to time according to the exigencies of economic and technological developments.

It is now widely recognised that different market functionaries use market mechanism for manifold hedging purposes depending on their objectives and economic influences affecting their trades. Hedging operations are, therefore, never uniform for all who enter futures market.

Typical illustrations of hedging hypotheses claim that hedges aim at minimising price fluctuation risks, and that price movements in both ready and futures markets are similar in both direction and magnitude. In other words, the combined outcome of both ready and and futures transactions in a hedge is zero—neither profit nor loss to the hedger. However, in practice, the correlation between the ready and the futures prices is never unity. Thus, although most hedges reduce risk of price fluctuations, they scarcely eliminate them altogether Rather, when correlation is negative, the risk is, in fact, increased. Consequently, a hedge ceases to be a risk eliminator; on the other hand, it becomes more risky

Holbrook is more critical of the concept of reduction of risk through hedge. While claiming that empirical studies have disproved this traditional concept, he replaces it by a more meaningful multipurpose concept of hedging He defines it as 'the use of futures contract as a temporary substitute for merchandising contract without specifying the purpose'

The book is a study of hedging practices in the cotton futures market of Bombay and covers a period of eleven years from 1953/4 to 1963/4. Though apparently looking quite old and not of much relevance, the period is not in fact so old in view of the fact that cotton futures market was suspended in 1966 and remained so ever since upto this day. Obviously, there was no scope for updating the study.

However, the advocacy by the author of the institution of future market as a strong bulwark against malignant development of oligopoly or oligopsony in free market conditions looks neither justified nor convincing In reality it is the other way round, and it is mainly because of this that a check has been put on futures trading The ban is fully justified.

In any case, the analysis is compact and at the same time lucid. The book has, however, been priced rather high looking to the quality of production can hardly be said flawless.

—**Dr. J.N. Sharma**

Books Received

1. **Rural Labour in India, Problems and Policy Perspectives** *by S M Pandey, Shri Ram Centre for Industrial Relations and Human Resources, New Delhi, Price Rs* 35 (*US* 12)
2. **Poverty of Policy** *by H K Paranjape, Somaiya Publications Pvt. Ltd. New Delhi Price Rs* 85
3. **Monetary and International Economics** *by K.P.M. Sundaram, Sultan Chand & Sons, New Delhi, Price Rs* 15
4. **Manual of Company Secretarial Practice** *by Prasanta Kumar Ghosh, Sultan Chand & Sons, New Delhi. Price Rs* 30.
5. **Capital Budgeting in India** *by L.S Porwal, Sultan Chand & Sons, New Delhi, Price Rs* 30.
6. **Science, Universities and Research in India, an introductory Essay** *by M.H. Gopal ; Geetha Book House, New Statue Circle Mysore Price Rs* 20

Development Notes

More Oilseed Complexes in Co-op Sector

Fifty new oilseed complexes are proposed to be set up in the co-operative sector in different states in the next five years. The new units will have a total capacity of eight lakh tonnes of different types of oilseeds. The total capacity of the existing oilseed complexes (installed as well as under installation) is five lakh tonnes or about 4 per cent of the total oilseed crushing capacity in the country. With the addition of eight lakh tonnes to the existing capacity, the co-operative sector will account for 10.8 per cent of the oilseed crushing capacity in the country

Production of oilseeds went up from 9 05 million tonnes in 1973-74 to 10 34 million tonnes in 1975-76 It is estimated that during 1976-77 production will be at the same level as last year

Programme to Step Up Oil Production

The joint sector Oil India Ltd. has drawn up a programme to step up its crude oil production by an additional 50,000 tonnes a year and maintain such production till about 1990. At present the OIL, produces 3 09 mullion tonnes of oil per annum, from its fields in Assam. According to OIL sources, the basis of this optimistic prospect is the discovery of oil in Jorajan, where oil was found in almost all wells drilled. The company plans to drill a number of developmental wells in this area

The OIL is pinning high hopes on its exploration activities in Arunachal Pradesh The organisation holds exploration rights in a small area in the Union Territory. It has already drilled four exploratory wells in Arunachal Pradesh Oil in reasonable quantities has been found at a shallow depth in Kharsang Three, drilled adjacent to Kharsang Two

Smokeless Domestic Fuel

The country's first smokeless domestic fuel named as 'Jwala' will be available for commercial marketing from January 1, 1977. The price will be around Rs 12 for 40 kg. Coal India has taken up various projects to increase production of this fuel. The plant at Kusunda with a capacity of 100 tonnes a day has started commercial production Sawan palletisation plant will go on stream very soon and its rate of production will be five tonnes an hour Commercial exploitation of proved processes of low temperature carbonisation has been made The Dankuni plant with a capacity of 13 million cubic feet of domestic gas and 1,000 metric tonnes of medium coke per day has already started The plant which is being erected, will be ready by 1979

REC Aid for Tamil Nadu Projects

The Rural Electrification Corporation has sanctioned a loan exceeding Rs 3 4 million for three new projects for the extensive electrification of 77 already electrified villages in Tamil Nadu.

The projects will be located one each at Marangapuri block in Thiruchirapalli district and Alwarthirunagar block in Tirunelveli district. When completed in two years, these will help energise 400 pumpsets in 16 villages.

The third project will be situated at Orathanad block in Thanjavur district. It is the sixth REC-assisted project in the district When completed in five years, it will supply power to 200 pumpsets and 33 small industries in 61 villages This apart, 1,650 domestic and commercial connections and 600 street lights will also be provided in the project area

REC has so far sanctioned loan assistance exceeding Rs 210 million for 71 projects to cover 2,800 villages in the state. When completed, these will energise 54,400 pumpsets and 1,900 small industries. Besides, more than 1.34 lakh electric connections for domestic and commercial use and 22,700 street lights will also be provided in the state

Milk Chilling Plant to be Set Up

A cattle feed mixing plant having an installed capacity of manufacturing 100 tonnes of fodder per day, a semen bank, an input centre and a chilling plant of 10,000 litres of milk per day capacity will soon be set up in Bharatpur district by the District Milk Producers' Union. Funds for this purpose will be made available under "Operation Flood" project

The marketing of milk and technical inputs will be carried on by the Rajasthan State Dairy Development Corporation through this Union.

The Dairy Development Corporation has already located the site at Nadbai for the fodder mixing plant. The union will provide veterinary aid, artificial insemination facilities, balanced cattle fodder and seeds of improved fodder to milk producers who are members of co-operatives.

Three Joint Sector Units in Rajasthan

Three units involving an investment of about Rs 56 million will start production in *joint sector in Rajasthan in* the next financial year

The first lot of five scooters from Rajasthan Industrial and Mineral Development Corporation owned factory in Alwar has already come out Another 50 scooters are already in assembly line and will role out for sale next year, 500 more will be available in March

The company's another own venture has produced 250 TV sets in Jaipur which will be handed over to ECIL for sale as per an agreement The Corporation is also examining the *possibility of producing* Janta TV sets which may not cost more than Rs. 1800

The three projects in joint sector expected to start production are the glass lamps and shells project at Alwar, synthetic textile unit at Banswara and the granite polishing factory at Jalore. The investment in the first and the last will be Rs 10 million each while in the Banswara unit it will be Rs 36 million

Pipes Unit Overfulfils Target

Rourkela Ispat has already fulfilled the annual target of producing 36,000 tonnes of electric resistance welded pipes with over three months still on hand

The cumulative production of ERW pipes amounted to 36,044 tonnes in December This means a monthly production of 4,157 tonnes against 3,245 tonnes a month achieved in 1975-76, representing a growth rate of 28 1 per cent

ERW plant at Rourkela meets the requirements of pipeline project of petroleum industries

Mango Kernel as Big Exchange Earner

Mango Kernels, which are usually cast away, are fast turning out to be a substantial foreign exchange earner

The kernel yields oil which fetches as much as Rs 12,000 a tonne abroad, and the pulp after extraction sells at Rs 550 a tonne

The boom follows its use as a substitute for cocoa butter by the chocolate manufacturers

The Government is making a serious effort to develop this item of export, as also malt which too has a substantial export potential

It had arranged for the export of some barley for the first time this year with good results

Hybrid Coriander Seed Evolved

Scientists of the Central Indian Medicinal Plants Organisation (CIMPO), Bangalore, have successfully evolved a new hybrid variety of coriander seed

This improved 'CIMPO-38, the result of five years of intensive selection from Bulgarian material introduced in the Bangalore experimental farms, will give about three times higher yield. Its oil content is about seven times more than that in the local variety

Coriander is grown in Tamil Nadu, Andhra Pradesh, Maharashtra, Madhya Pradesh and Rajasthan in a total area of over 2,62,000 hectares

According to the CIMPO here the country had exported 743 tonnes of coriander seed valued at Rs 3.29 millon during 1975-76 as against 669 tonnes valued at Rs2.79 million in 1974-75.

Cement Plant Begins Work

A new cement factory of the public sector Cement Corporation of India, at Bokajan in the Mikir hills areas of Assam has gone into trial production ahead of schedule It is proposed to produce in the factory special type of oil well cement and sulphate resistant cement, which would save the country foreign exchange to the tune of about Rs 20 million a year. About ten thousand tonnes of this type of cement is being imported now for the expanding oil drilling industry at a cost of Rs 1700 per tonne

Another new project, at Rajban in Himachal Pradesh is in an advanced stage of construction. Sixty to 70 per cent of the machinery has arrived and the project is expected to be commissioned by the end of 1977.

Including Bokajan and Rajban, the Corporation had taken up two more projects in 1977-78.

Namrup Keeps Up Output Growth

The Namrup Fertiliser Factory has kept up its production curve by registering an increase of 5 6 per cent during April 1976. The increased production stood at 29,120 tonnes of nitrogen against 27,560 tonnes during the corresponding period of 1975

The Namrup Fertiliser Factory, designed to produce 45,000 tonnes of nitrogen in the form of urea and ammonium sulphate, went into commercial production on Jan. 1, 1969.

During 1975-76, the Namrup unit produced 102 per cent of its installed capacity. Its urea plant surpassed the installed capacity for the second successive year. In the form of nitrogen it has produced 45,352 tonnes against the installed capacity of 45,000 tonnes

The Namrup expansion which is designed to produce 1,000 tonnes urea a day, went into commercial production on Oct 1, 1976.

Record Output of Titanium Pigment

The Travancore Titanium Products (TTP), the largest Kerala Government undertaking has achieved a record production of nearly 10,000 tonnes of titanium pigment during 1976

According to a review on the working of the company 1,000 tonnes of this production were exported earning Rs 40,00,000 in foreign exchange The highest annual production so far was 7,611 tonnes

During the year about 1,200 tonnes of rutile were produced

Cochin Shipyard to Build Carrier

The Cochin Shipyard signed a contract to build a big bulk carrier for the Chowgulf Steamships Limited.

This is the third "panamax" type 75,000 tonne vessel, the biggest type to be built in the country The first two such ships are on orders by the Shipping Corporation of India and the Ratnakar Shipping Company

The Cochin Shipyard went into production early this year

Beas Power Project on Stream

The Haryana State Electricity Board's Rs 1 50 crore new power project under Beas Power Development Programme has been commissioned The new 132 kv sub-stations and 25 km transmission lines have been constructed and energised The installed capacity has been raised from 37 to 56 mv to meet the increased need of tubewells The Board has completed the project in advance for utilising Beas power It will get power from 400 kv sub-station at Panipat, the highest kv rating sub-station in northern region

Four-Fold Rise in Scooter Export

A four-fold increase in the export of India-made scooters was recorded in 1975-76 when an estimated 12,000 scooters were exported at a value of Rs 36 million The export trade in the previous year was a little less than 3,000 scooters valued at Rs 7.10 million

Production of scooters in India was of the order of 97,300 scooters in 1975, as compared to 86,000 produced in 1974 and a little over 78,000 in 1973

There are eight manufacturers engaged in the manufacture of scooters with a combined capacity of 315,000 numbers per year. Besides six more units are likely to commence production soon with an additional capacity of 144.000 per cent.

Onshore Oil Potential

The on-shore oil potential in India by next year will be slightly in excess of 6.5 million tonnes per annum or an increase of 60 per cent over the previous levels as a result of substantial efforts made by the Oil and Natural Gas Commission.

Drilling activities in West Bengal, Himachal Pradesh, Uttar Pradesh and Andhra Pradesh are being activised during the current year

Two drilling rigs were currently operating in Tripura and operations there would be further intensified by two more rigs in the current year.

Production had been stabilised around four million tonnes in 1974 which was gradually stepped up to 5.2 million tonnes in 1975-76.

While the additional fields. were being developed in the eastern region, the western region in north Gujarat would enable ONGC to sustain production at an annual rate of over four million tonnes for some years against the production level of five million tonnes in the eastern region.

The additional production would be adequate to meet the requirements on Bongaigaon refinery now under construction.

The Commission was currently deploying 18 geological field parties, 26 seismic survey parties, and three gravity magnetic parties on-shore.

Germplasm Collection by ICRISAT

One of the biggest collections of germplasm to help plant breeders working for rainfed areas in Asia and Africa has been acquired by the International Crops Research Institute for the Semi-arid Tropics (ICRISAT), located in Hyderabad

The institute has assembled so far 21,000 lines of jowar, (sorghum) about 4,000 lines of bajra (pearl millet) 10,600 lines of Bengal gram (chick pea) and 5,530 lines of arhar and tur (pigeon pea)

It has recently started work on groundnut and is assembling the world germplasm on this important crop, on which adequate research work has not been done so far

The ICRISAT scientists try to evaluate the lines and study their behaviour towards diseases and pests and catalogue their characteristics before making the lines available to any breeder in the world for a specific crop improvement programme

ICRISAT, operating since 1972 under the Consultative Group on International Agricultural Research, aims at helping the poor farmers of the semi-arid tropics whom modern technology has only touched lightly. One of the main constraints of this farmer is limited-water distributed during a short rainy season. About 500 million people live in the semi-arid regions spread over 48 countries

The researches taken up in the institute focus mainly on improving the principal food crops in the region as well as the farming systems to help increase and stabilise agricultural production

Mansurwari Dam Nearing Completion

Work on the Rs 14 9 million Mansurwari Dam Project near Deori i Sagar district of Madhya Pradesh is going apace On completion, the project will provide irrigation to 2,800 hectares of fertile farmland in 21 villages It is expected to be completed this year

The project, work on which was started in June 1975, envisages the construction of a 3,100 ft. long and 72 ft. high masonary dam across Shukhchain rivulet with a storage capacity of 5,127 lakh cft of water Total length of canal system of the dam will be 14 miles with a 315 ft long waste wier.

Arunachal Pradesh Annual Plan 1977-78

The outlay for the Annual Plan of Arunachal Pradesh for 1977-78 will be of the order of Rs. 13 63 crores This will be Rs 3 93 crores (40 2 per cent) more than the current year's Plan outlay, which is Rs 9 70 crores

The Fifth Plan outlay for Arunachal Pradesh is of the order of Rs 63 29 crores inclusive of Rs. 8.55 crores for core projects specially approved by the Planning Commission. The actual expenditure during 1974-75 was Rs 6 64 crores During 1975-76 it was Rs 7.76 crores. The 1977-78 Plan outlay is Rs. 30 85 crores

The break-up of the outlay under major heads includes: Agriculture and Allied Services Rs 3.90 crore, Cooperation Rs. 45 lakh, Water and Power Development Rs. 1 10 crore, Industry and Minerals Rs 26 lakh.

HIMACHAL'S

Achievements

Under

24-Point Programme

- One-acre land given to all landless tillers
- More land given to small farmers to raise their holdings to one acre.
- House-sites given to all houseless persons.
- Proprietory rights given to occupancy or non-occupancy tenants
- Private debts of poor villagers (annual income upto Rs. 2400) written off
- Easy and cheap finance for economically weaker sections. Rs. 90 lacs given so far
- Consumption loans through cooperatives.
- Cut in administrative expenditure.
- Anti Dowry Bill passed
- Three crore trees being planted.
- Cheaper food and more sugar for hostel students
- Cheaper text books and exercise books for al students
- Controlled Cloth for all
- Lower prices of essential commodities
- Higher Minimum wages for workers
- More employment for Youth
- Better Tax collection
- More electrified villages and enhanced pow generation
- Better deal for handloom workers.
- Stringent prohibition policy adopted.
- One lac sterlizations being performed.

HIM LOK SAMPARK

HARYANA : An Action-Packed Decad

Certainly, a decade is a small dot in the lithograph of Time. It is too short a span even for a small

NOT SO IN HARYANA

Here time and effort have telescoped the decades of progress.

In this decade, something has happened. What is it?

Here, in this Fastest Growing State of India, per-capita income is the second highest A peep into sa features is surely worth it

EARTH YIELDING MORE

From scanty, we have marched ahead to plenty. Ten years before, the Agricultural production merely 25.92 lakh tonnes, i e there was not enough for everybody in Haryana itself But now the figure doubled and gone upto 50 49 lakh tonnes—contribution towards the Central Pool being some 14 lakh tonr

WATER FOR PARCHED LANDS

Irrigational facilities have been provided to additional 4.06 lakh hectares by means of :—

(i) Lifting waters upto 570 ft;
(ii) Avoiding seepage losses of 638 cusecs,
(iii) Utilising 1426 cusecs of flood-waters; and
(iv) Exploiting 1575 cusecs from ground-water resources

The total irrigated areas has risen from 13 lakh hectares to 17 lakh hectares It is likely to increas 23 lakh hectares as soon as 3 5 MAF water of Haryana's share in the surplus Ravi-Beas waters becomes a' able

AN ELECTRIFIED SCENE

By November, 1970 it had earned the distinction of being the first State in the country to have achi 100% rural electrification target. Per capita consumption of electricity has gone up from 57 to 139 u and the number of consumers from 3,49,575 to 7,93,139 Agricultural sector alone consumes 45% of the t connected load—the percentage being the highest in the country

HOME-STEADS FOR WEAKER SECTIONS

Over 2 15 lakh dwelling sites have been given to the Harijans and another 3 lakh sites to the landless

KEEP THEM STURDY

Medical attention is being taken to all those who need it Per capita expenditure on health and m cal facilities has risen from Rs 4 60 to Rs 10 79 On medicine alone, it has gone up to 99 paise and rate is the highest in the country

FAMILIES CUT TO SIZE

Against the national level of 18% Haryana has achieved 37 2% sterilization target and earned dist tion Targets have been so revised as to achieve the zero per cent rate of population growth at the earli

MOON IS NOT FAR

The Haryana Roadways buses operate on 4 63 lakh kms daily, i e equal to the distance from earth to the moon, and carry 5 64 lakh passengers everyday

THE WHEEL SPINS

The Industrial scene in the State has undergone a radical change At present, there are about 300 l more than 500 medium and some 18,000 small scale units working in Haryana Exports of industrial go have also increased from Rs 4 50 crores to about Rs 34 crores

ILLUMINATING AREA OF IGNORANCE

Universities at Kurukshetra and Rohtak are engaged in educating and grooming of the young mind unique kind of school has taken shape in the Moti Lal Nehru Sports School at Rai, besides the prestig Agricultural University at Hissar About 18 lakh students are covered by the State's educational enterp at all levels

OUR BRETHREN TO THE FORE

Expenses on welfare of the Scheduled Castes/Backward Classes and old Age Pension Schemes have i from Rs. 27.96 lakh to Rs. 154 14 lakh.

THE GUEST WHO CAME FOR DINNER BUT STAYED!

Haryana is a pleasant place to visit The superb Holiday resorts like the Dabchick, Golden Oriole, Whi ing Teal, Purple Sunbird, Mayur, Magpie and Rosy Pelican are now on the country's Tourist Map. Eve short visit will suffice to convince you

ISSUED BY : **DIRECTOR, PUBLIC RELATIONS, HARYANA**

Indian exports
touch a new high
(IN CRORE RUPEES)
EXPORTS
EXPORTS UP BY 34%
3000
2000
1000
0
2062 63
2760 37
APR.—OCT
1975
1976
4000
3500
2500
1500
500
459
660
805
3304
1948-49
1960-61
1965-66
1974-75

20-POINT ECONOMIC PROGRAMME
IN
ARUNACHAL PRADESH

The Prime Minister's 20-point economic programme has ushered in a new era of socio-economic fulfilment in Arunachal Pradesh. ARUNACHAL PRADESH an area that suffers century-old neglect and misery is now passing through a most significant phase of her socio-cultural life. An area that merits rapid development and urgency of socio-economic schemes, the 20-point economic programme has proved to be an economic charter containing remedial measures for quick development and has given a new dimension to socio-economic planning in the area. The Government's concrete measures are as follows:

(a) Procurement and distribution of essential commoditeis by a vast net work of consumer cooperative stores with a view to stabilise prices and also the responsibilities of procurement and processing of agricultural produce like paddy, mustard seeds etc. in the surplus pockets entrusted with the cooperatives.

(b) Free supply of text books to all bonafide tribal students from Class I to Class VI and on highly subsidised rates to students from Class VII upwards.

(c) Arrangement also being made for starting of book banks for the benefit of children belonging to weaker sections.

(d) Facilities for training to the teachers are also made available.

(e) Encouragement and initiatives being given to farmers to take to permanent cultivation with specific methods. Fertilizers and HYN seeds of different crops are supplied on subsidy basis.

(f) With a vast potential for vital power, Arunachal Pradesh looks forward to an ambitious programme of rural electrification in the interior which will not only be sufficient for domestic consumption but also for the growth of small and medium scale industries in the near future. Guided and inspired by the dynamic objectives of the 20-point economic programme, teams of technical experts from the Central Electrical Authority have visited Arunachal Pradesh to explore the possibility of electri fication by tapping unlimited hydraulic resources of the territory.

(g) In keeping with the rich tradition in weaving, carpet making, wood carving and painting, the Arunachal Pradesh Government has pursued a consistent policy aiming at the revival and enrichment of the traditional arts and crafts with active encouragement and popularisation of styles and designs. The aim, so far as practicable, is to sponsor self-employment ventures by providing financial aid and technical guidance to the trainee. Local artisans and 20 units of such entrepreneurs are actively pursuing the particular trade as a source of livelihood.

AND

Many more socio-economic schemes within the broad spectrum of 20-point economic programme, Arunachal Pradesh is heading towards a more prosperous and better future.

years of service to the public sector

Dasturco pioneers engineering self-reliance

Established at the instance of Government, Dasturco has, since its inception, been closely associated with the development of the public sector—in the planning, design and engineering of steel and other projects for the Central as well as State Governments. As pioneers of steel plant engineering in India, it is in the forefront of new technologies ■pelletizing and sponge iron ■OBM and electric arc steelmaking ■continuous casting ■vacuum degassing ■Sendzimir mills etc.

Mining and ore beneficiation
Dasturco is the only organisation in India with the special expertise on magnetite ores and its pelletisation. The firm has carried out intensive investigations in India and abroad on the Kanjamalai magnetite ore, similar to the Kudremukh ores.

Integrated Steel Plants
Dasturco is providing engineering services in specified plant areas for Bokaro. It is also consultant to Government on the Visakhapatnam Project—the first coast-based steel plant in India.

Alloy and Special Steels
The full range of services—design, engineering, working drawings and construction supervision—were provided by Dasturco on the Alloy Steel Plant, Durgapur—the first large metallurgical unit to be completely designed/built by Indian Engineers. Dasturco is also consultant for the Alloy and special Steels Plant at Salem, the Phase I work on which is now in hand.

Uranium Mill and Nuclear Fuels Complex
As consultants to the Department of Atomic Energy, Dasturco provided engineering services on the Uranium Milling Plant, Jadugoda and the Nuclear Fuels Complex, Hyderabad, which provide the fuel elements to India's nuclear reactors.

▲ *Raw materials handling system, Bokaro Steel Plant*

▲ *Magnetite ore mining and beneficiation, Kanjamalai, Tamil N*

▲ *50-ton arc furnace tapping, Alloy Steel Plant, Durgapur*

▲ *Leaching pachukas, Uranium Milling Plant, Jadugoda*

Mini Steel Plants
Dasturco is consultant to various State Governments and industrial development corporations. Currently, it is providing complete engineering services on the small integrated steel plant at Chandrapur near Nagpur for SICOM, Government of Maharashtra.

M. N. [illegible]TUR & CO (P) LTD. *CONSULTING ENGINEERS* CALCUTTA

MDC-398

The people at ONGC fulfil another pledge—by producing 32,000 barrels of crude per day at Bombay High—in just three years from the first oil strike. Within this short span of time, ONGC has also mastered a whole new technology.

By the end of 1977, ONGC hopes to double production of crude from Bombay High to nearly 80,000 barrels per day.

On shore, too, ONGC has intensified its activities. There is a country-wide search for new oil fields. Simultaneously, all-out efforts are being made to strengthen indigenous capability—by developing expertise, personnel and equipment.

The strength to achieve this lies in the 23,000 dedicated men who constitute ONGC. And in the fact that, by its own constitution, ONGC is committed to carry on a ceaseless search for oil.

And, lending strength to its manpower is the manner in which the Commission's operations are constituted.

All activity is grouped under four different regions—Western, Eastern, Central and Off shore.

Happenings in every site, in every region are communicated to the Headquarters at Dehra Dun. Which, in turn, steers these operations to desired objectives, through judicious amendments, as and when necessary.

All these constituent strengths have enabled ONGC not only to set ambitious targets, but also to achieve them On shore as well as off shore.

And ONGC's success at Bombay High is just the preamble.

Oil & Natural Gas Commission
Tel Bhavan, Dehra Dun.

Our strength is in our people

Oil flows
-the nation grows

Workers help produce more, reduce waste

About a year ago was launched the scheme for Workers' participation in industry (item 15 of the 20-point programme).

Already, 356 units in the Central Government have implemented the scheme, resulting in improved production & efficiency. Wastage has been reduced. Production targets have been exceeded, in unit after unit.

In the states, 1079 units have adopted the scheme. Some of these employ even less than 500 workers. But the benefits spread; the Nation moves.

davp-76/655

Printed at Universal Advertisers E/2, Jhandewalan Extn., New Delhi-110055 and Published by the Director, Publications Division, Patiala House, New Delhi-110001.

YOJANA

Volume XXI Number 2
New Delhi
February 15, 1977
26 Magha1898

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati; Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan, but is not restricted to expressing the official point of view

Chief Editor
S SRINIVASACHAR

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Editorial Office : Yojana Bhavan, Parliament Street, New Delhi-110001. **Telegraphic Address** : Yojana, New Delhi, **Telephones**: 383655, 387910, 385481, extensions 402 and 420, **Circulation** : Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription ; Annual—Rs 18, Two years—Rs. 30. Three years—Rs. 42, **Foreign Subscriptions** : One year—£2.70 or $5.50. Two Years—£4.50 or $9.00. Three Years—£6.30 or 12.50 Single copy—eight pennies or $0 25.

INDIA MOURNS THE DEATH OF A GREAT SON

WHEN THE President Shri Fakhruddin Ali Ahmed cancelled his visits to Burma and the Phillipines on medical advice and returned to New Delhi on February 10th, he looked relaxed and little could we imagine that his life-time was soon destined to come to an end.

Son of Col Z A Ahmed and Smt. Roquya Sultana, Fakhruddin Ali Ahmed was born on 13th May, 1905 in Delhi His parents originally belonged to Kacharighat in Assam After his early education in the Government high school, Gonda (U P.), Shri Ahmed went to graduate from St Stephen's College, Delhi Later he went to St. Catherine's College, Cambridge, and became a barrister He was called to the bar from the Inner Temple, London in 1928.

In 1931 he became a primary member of the Indian National Congress. He was imprisoned for one year for offering individual Satyagraha in 1940 and immediately after release he was detained as security prisoner for 3½ years till April 1945.

He was elected to the Assam Legislative Assembly in 1937 from Kamrup. He became the Finance and Revenue Minister in the cabinet of Shri Gopinath Bardoloi in 1938-39.

In 1946 he became the Advocate General to Assam. He held this position till 1952.

Shri Ahmed joined the Assam Cabinet as Minister in charge of Finance, Law, Community Development, Panchayat and Local Self Government following his election to the Assam Assembly in 1957.

He joined the Cabinet of Smt Indira Gandhi in 1966 and held various Portfolios at the Centre. He resigned in 1974 following his nomination by the Congress Party to the Presidency.

A lover of sports and a keen sportsman himself, Shri Ahmed evinced keen interest in literature and the arts.

He was the President of India during a critical and momentous period and in his death the nation has lost not only a great leader, but also a sincere, dynamic and devoted servant of the people.

Tamil Nadu

A Year of Peaceful Progress

K.R. Nair

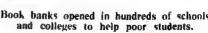
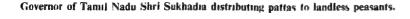
It is now one year since Tamil Nadu came under President's Rule. President's Rule has been extended by another six months. Unlike some other States where inter-party or intra-party differences had brought down Ministers in the past, and the President had to take over the administration, in Tamil Nadu the debacle was caused by the rulling party, DMK, forfeiting the confidence of the people who had elected it to power.

THE YEAR THAT has passed has witnessed miraculous changes in the administrative set up. The first task that faced the Advisers when they took over was the need to tone up the administration, many of whose personnel, particularly at certain top levels, had become mere automatons blindly carrying out the orders, often illegal and contrary to rules, of the Ministers. While some of them were willing tools, others not so willing but allowed themselves to be compromised because of fear of consequences which might have resulted from non-compliance A qualitative change in the attitudes of officials manning the various levels of administration has now been brought about This involved considerable reshuffling of personnel and their change around. Quite a few cases where abuse of power was detected were inquired into and disciplinary action taken 528 Gazetted officers and 256 N.G O's had been compulsorily retired till the end of October 1976; fourteen of the gazetted officers have been reinstated

Government-appointed commissioners for disciplinary proceedings are functioning at Madras, Madurai and Coimbatore Corruption charges against gazetted as well as non-gazetted officers are being looked into by them

Governor of Tamil Nadu Shri Sukhadia distributing pattas to landless peasants.

Book banks opened in hundreds of schools and colleges to help poor students.

Conditions at the 'cutting edge' level have also come in for consideration and rectification by the Government. Cumbersome proceedings have been simplified and public grievances and complaints receive instant attention unlike in the past when those making representations often received cavalier treatment from administrative personnel charged with the task of rendering redress. Priority attention was devoted to units like police stations, Departments of civil supplies, transport and rationing, block offices, hospitals, banks, treasuries etc. There has, consequently, been considerable improvement in the efficiency and behaviour of the per-

Shri Nair is former Chief Reporter, P.T.I., Madras.

sonnel concerned. Efforts are on to maintain the tempo of change.

Punctuality has become the watchword for staff in Government offices where files now move faster and the attitude of 'laissez faire', noticed earlier has disappeared.

The past year has seen a remarkable change for the better in the field of police-public relations and the acerbity which had almost become a characteristic of the relations is slowly disappearing. The image of the police in the State had suffered a great deal of damage owing to its incapacity to tackle acts of goondaism indulged in by ruling partymen. There were instances of police excesses, callousness and indifference to public woes Steps

To promote higher agricultural production, more irrigation facilities are being provided especially in the drought prone areas.

Provision of drinking water in villages has been given top priority.

taken by the Administration to remedy this depressing state of affairs included mass transfers of officers and men belonging to the force whose integrity was in doubt. Complaints are now registered promptly and inquired into Senior officers undertake tours of interior villages in order to infuse a sense of security among the weaker sections and to inquire into complaints of harrassment by lower ranks of the force. Police-public relations are now governed by a 22 point character which conveys to the police their obligations and to the public their rights.

Though policemen have not turned into knights in armour, they are fast becoming true guardians of public lives and property-a desideratum devoutly wished for, but seldom attained.

The discipline noticed in all walks of life in the wake of the proclamation of emergency is happily enough continuing Peaceful conditions prevail in the State and protest meetings, processions and 'morchas' which used to occur at the drop of a hat are absent Students, freed from the pressures which used to be exerted on them by extraneous elements, have gone back to their studies, and college campuses now present a picture of peace and tranquillity. In industry, labour-management relations are marked by cordiality with the machinery of negotiation being given an opportunity to settle disputes without rancour on either side. It is not as if disputes do not arise, but the moment they do, the State apex tripartite body set up by government steps in pronto and sets matters right The picture is now a completes reveral of what used to happen a year ago.

The peaceful conditions prevailing on the industrial front has enabled industries in the State to perform better and to improve production. It has also led to a revival of interest in setting up new industries in

Apprenticeship training given to educated young people to prepare them for vocation

Consumer necessities at fair prices at Fair Price Depots.

the State, and according to a department spokesman, a significant number of applications for letters of intent and licences have come in and are being processed The needs of new industries, particularly in the fields of inputs, financial assistance and infra-structure are being looked into.

Industries like leather, sugar, electronics, salt, minerals, fertilisers, handlooms, silk, tea and cement are making good progress Their problems are dealt with by government on an individual basis instead of collectively under the head 'industry' as in the past A special committee set up by Government during the year is currently engaged in identifying the areas in which production in the electronics industry can be stepped up. The necessary developmental facilities are being set up at selected centres. It has been decided to set up an Electronics Corporation to assist the industry.

Workers have been given increasing voice in the affairs of management of factories and industrial establishments

Tamil Nadu which has attained considerable fame as an exporter of leather, is now switching over to the manufacture of finished leather and leather goods. Units are being set up in various centres in the State in collaboration with countries like Italy, Yugoslavia and France. The setting up of a leather Corporation is also on the anvil.

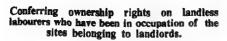
The economic condition of a number of textile mills in the State is less than satisfactory, but timely steps taken by the administration have helped in stemming the rot Since most of the mills are devoted to spinning, certain problems arise now and then in the realm of prices of cotton and sale of yarn, for both of which they have to depend on outside markets The causes for the sickness of the mills are investigated and solutions suggested, "but the problems are such that only the Central Government can find solutions "Meanwhile things are very much in hand" he added.

Cement factories in the State have been taking full advantage of the current boom on the export front. West Asian countries, where considerable building activity is going on, have been among buyers of cement from Tamil Nadu

Small scale industries have also been enjoying a good period and more industries are being licensed in the State Against a target of 5,900 small industries proposed to be set up by November 19 last on the occasion of the Prime Minister's 59th birthday, as many as 10,000 were registered and most of them are expected to become productive in three to six months time.

A development which has given considerable gratification to the new regime is the eagerness evinced by a number of entrepreneurs from out-

Institution of private money lenders has been abolished and institutional credit has been sanctioned to thousands of needy peasants.

Conferring ownership rights on landless labourers who have been in occupation of the sites belonging to landlords.

side to set up industries in the State. According to a spokeman of the industries department this was an indication of their confidence that conditions in the State were now ideal for investment. Efforts are being made by the agencies concerned to extend all facilities and the necessary infra-structure to the entrepreneurs.

Peace on the industrial front has also helped some of the Centrally-owned industries to show better results. The Hindustan Photo Films at Ootacamund has turned the corner and the Neyveli Lignite Corporation, which has been in the red since its inception, is expected to show a profit of Rs. 4 crores in the current year

Managements of cooperatives in the State have come in for considerable shake up during the year Management of practically all of them have been put under special officers and those among the former executives found guilty of malpractices are being arraigned before the courts. Under the DMK regime, most of the managements of the co-operatives were headed by ruling party nominees and they had been playing ducks and drakes with the societies' funds, diverting large sums to enrich their own private coffers. Co-operatives now play a very important role in meeting consumption credit needs of their member for meeting expenses arising from marriages, sickness and deaths. Allocation for jewel loans has been increased to Rs 40 crore during the year, which is double that made in the previous year. As a result of a drive launched during the year, as many as 33 lakh out of the 50 lakh agricultural families in the State have become members of co-operatives in the State, which represents an increase of about 5 lakh from the number at the beginning of the year Seven large size multipurpose co-operatives are being set up to assist tribal people in the State. These will not only extend agricultural and consumption credits to the tribals, but also assist in processing their produce and marketing them.

Administrations of some important temples in the State which had become hot beds for corruption were superseded during the year and

Deprived and backward villagers are receiving special attention.

Bonded labour has been abolished and the freed labourers are now treated on par with other paid labourers.

Supply of much needed agricultural implements and bullocks to the poorest peasants has been made in many villages.

Controlled cloth being distributed to the poor in fair-price shops.

placed under special officers. Some members of previous boards of Trustees are now facing charges including alienation of lands and property belonging to the temples, favouritism in the matter of appointments of trustees and diversion of temple incomes for personal and party purposes.

An important development during the year was the creation of the Southern rice zone. The free flow of rice from Andhra Pradesh and Karnataka into Tamil Nadu will have a steadying influence on the prices in the State. Foodgrain position in the State, according to an official spokesman, is satisfactory, though a short fall of about ten lakh tonnes in production against the targetted 84 lakh tonnes is expected this year as a result of the failure of the south west monsoon and lower availability of irrigation water from Mettur and consequent shrinkage in the acreage raising paddy. In any normal year, paddy is sown over an area of 70 lakh acres, but this year paddy could be raised only in 42 lakh acres. There is no anxiety on the food front as the stock position is comfortable The government of India has given a generous assurance of aid should the need arise

Twenty Point Programme Implementation

As far as the 20-point economic programme is concerned, good progress had been made in implementing it, despite the delayed start it got. The following is a brief summary of the progress under the items which come within the State's Juridiction:

The prices of rice and other commodities have been kept within reasonable levels. The price of boiled rice (medium), the staple food, ranged from Rs 1.90 per Kg at Madras and Rs 2 20 per Kg at Tiruchirapalli in December, as against a wide variation ranging from Rs 1.60 to Rs 3 10 per Kg a year ago. The price of *cholam* (maize) remained steady around Rs 1.60 and that of ragi ruled around Rs 1.40. The prices of Blackgram and Bengalgram remained more or less steady at about Rs 3.50 to Rs 3.80 per Kg. and Rs 1.80 to Rs 1.90 per Kg respectively. The price of groundnut oil ruled between Rs. 6.50 to Rs 7.50 per Kg.

The price of chillies, the chief spice of mass consumption, ruled around Rs 7.00 per kg, a decline of more than 50 per cent compared with the prices that prevailed a year ago.

Procurement of foodgrains during the kharif year has reached an all time high of 8.2 lakh tonnes.

The Civil Supplies Department is operating ten departmental stores where all essential commodities are available at reasonable prices. This part of a drive to hold the price line.

Between February and November 1976, 12,412 acres have been assigned to 9,461 persons, of whom scheduled caste beneficiaries were 4,924. During the period from February to November, house sites numbering 1,56,526 have been assigned by way of unobjectionable encroachments. The beneficiaries included 35,795 belonging to scheduled castes and 2,009 to scheduled tribes Against the target of 59,000 house site pattas to be distributed on 19th November, 59th birthday of the Prime Minister, 1,22,306 were actually given away on that date.

Bonded labour freed in the State total 2,652. Cultivable lands have been assigned to 525 families and adhoc employment and subsidiary farming assistance has been given to 626 families. Under the Tamil Nadu Debt Relief Act, passed on July 29, 1976 so far 2,70,532 instances of debt have been written off, the amount involved being Rs 3,85,869 benefiting 998 persons

With effect from 2nd March 1976, the minimum wages for agricultural labour have been enhanced and range from Rs 3 50 to Rs 9 00 per day for adults and from Rs 2.10 to Rs 5 00 per day for non-adults. By a notification issued in November under the Minimum Wages Act, employers who had been paying wages higher than minimum wages, have been asked to continue to pay at the higher rates Government has posted officers in predominantly agricultural areas to ensure endorcement of the provisions of the Act.

A target of 18,000 hectares to be brought under new irrigation has been fixed for Tamil Nadu Sixteen major and minor irrigation projects are currently under execution in the State and Rs. 86 95 million had been spent till the end of November 1976 out of the budget estimate of Rs 1,613 lakhs

Under the programme for sinking bore wells. against a target of 6,700 bore wells to be sunk in the drought affected districts, 6,689 were actually completed by the end of November

Work on the execution of the Tuticorin thermal power project is in full swing. The current year's provision is Rs 34 50 crores. 19,960 agricultural pumpsets have so far been energised against the targetted 35,000 pumpsets for 1976-77.

Sustained efforts are under way to revitalise the existing handloom cooperative societies in the State and to form new ones. There were 848 weavers cooperatives in the State at the end of November 1976. To enable formation of new societies as well as for admission of weavers in the existing societies, loans to individual weavers aggreating Rs. 23 94 lakhs were sanctioned by commercial banks up to the end of November. 24,961 bales of cotton yarn valued at Rs. 79 86 million were supplied to the primary weavers societies during the period from February to November 1976. The export-oriented handloom project

Adequate funds have been provided to augment power production, so necessary for growth in industry and agriculture.

National permits have been given to trucks to improve movement of essential goods between States.

Students from poor families pursuing higher studies are provided essential commodities at hostels.

at Karur and the intensive development projects at Erode and the silk weaving centre at Kancheepuram have gone into production.

Production of controlled cloth (sarees and dhoties) on handlooms has been taken up on an experimental basis; 5,000 handloom 'janata' dhoties and 2,000 'janata' sarees were released in October. Regular sales of controlled cloth are being done by COOPTEX, the apex Society, from December. The distribution of controlled cloth through cooperatives has been streamlined so as to ensure that 75 per cent of the allotment reaches the rural areas. There are 4,682 retail points, of which 4,000 are situated in rural areas.

Workers participation in industry· out of 228 units in the State which the scheme applies, 206 have implemented it so far.

Permits have been issued to 222 persons so far in the State Under the National Permit Scheme for road transport.

Out of 1,204 hostels, 1,141 are being supplied with essential commodities at controlled rates, benefiting 1,08,068 students.

Out of 212 colleges, book banks have been opened in 201 and the total number of books collected is 2,05,361. The value of the books supplied till the end of November was Rs. 26.71 lakhs. Work of distributing books to schools has been entrusted to cooperatives in the State. They had sold books worth Rs. 25.5 million till the end of November.

9,242 training places had been filled up by the end of November, 210 of them women apprentices and 4,047 belonged to scheduled classes and minorities.

The Tamil Nadu Youth Congress has been spearheading the campaign for popularising the 5 point programme of Mr. Sanjay Gandhi. Youth Congress workers who had been working among the student community as well as among the youth in the State have registered some success in the campaign do away with the dowry system and pledges to fight the evil are pouring into the office of the youth congress from all over the State.

Family planning which has pride of place in the programme has been receiving a great deal of attention at the hands of Government A state family planning review committee consisting of officials and non-officials with the Governor as Chairman, has been set up to ensure that the programme is well carried out. Against six lakh sterlisations targetted for 1976-77, 3.16 lakh operations had been completed by the end of October. Tamil Nadu which has been one of the leading States in the country in the field of family planning is the first State in India to bring down the birth rate to 29 per thousand, presently the lowest in the country.

The foregoing account gives a picture of the various targets fixed and achieved under President's rule. The period has been one of all around improvement. The rule of law, which had to give before the onslaught of acts of lawlessness and goondaism under what practically amounted to official auspices a year ago, has been restored, fissiparous and secessionist trends, which had raised their ugly heads, have been fought to a standstill and conditions for orderly progress of the State created These are solid gains of which any administration can be proud of. □

An Integrated Approach To Rural Development

A Re-Thinking Is Called For

Integrated rural development has become a national slogan and science and technology, the main instrument proposed for its implementation. What exactly do we mean by this? Development in Indian conditions is an inter-disciplinary concept and it is not the exclusive concern of the professional economist What we need is a conceptual analysis of the village as unit of development and not every one of India's villages can be considered a viable unit In this thought—provoking lecture DR. V K R V RAO poses the problem from the administrative angle and it is no small problem as he sees it

YOJANA will be happy to carry informed discussion on Dr. Rao's thesis

THERE HAS been a great deal of talk in recent months about the need for bringing about integrated rural development in our country The Government of India have announced their approval for starting pilot projects for integrated rural development in twenty districts, one in each state The Indian Council of Agricultural Research has already initiated programmes of integrated rural development in several areas dispersed all over the country The Council of Scientific and Industrial Research has been operating a programme for integrated rural development in the Karimnagar district in Andhra Pradesh and has announced its intention to start similar programmes in several other districts in the country. In all these proposals and programmes, the accent is on the use of science and technology for the solution of the problems of rural development. Several universities and institutions of higher education have taken up progiammes of rural development in selected areas; and in their case also, the accent appears to be on the use of science and technology for rural development, though this is not clearly stated in all cases Thus integrated rural development has become a national slogan and science and technology the main instrument proposed for its implementation

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Excerpts from XVI Convocation Address to the Indian Agricultural Research Institute.

WHAT DO WE MEAN BY INTEGRATED DEVELOPMENT?

When we talk of integrated development, we are not talking just in economic terms In fact, all aspects of life and activity, which are subject to manipulation and controlled change, come within the sphere of development The goal of development thus becomes the enrichment of the quality of life and its availability at minimum levels to all sections of the population. Development is not merely the provision of opportunities for resource development in the light of appropriate science and technology but also their actual utilisation and, therefore, the creation of the necessary facilities for such utilisation Thus the power structure, its class composition and its unequal incidence the interests it serves, institutions economic, social and political— state of the law, the state of kno ledge and use of science and te nology, information and commu cation, bureaucracy, monitor and evaluating the progress of de lopment—all these fall within scope of development Developm thus becomes an inter-disciplina concept, which is no longer exclusive concern of the prof sional economist or scientist technologist.

Integrated rural development volves the development of both tural and human resources and t has to be done within defined are It also requires the identification the poor and specific measures des ned to lift them above the level poverty. Integrated rural develo ment does not only mean agric tural development or increase agricultural productivity. It has include all productive activity su as secondary and tertiary, and p mary other than crop-raising. N only has it to include all prod tion and means designed to impro productivity, but also to provide

full employenmt, and an equitable distribution of the proceeds of development with particular reference to the elimination of poverty. It should be clear therefore that while science and technology can certainly help, they cannot do it by themselves nor function as a magic wand.

VILLAGE AS UNIT OF DEVELOPMENT

To begin with, it is necessary to recognise that development, whether of natural or human resources, is area-bound and has to have viability and effectiveness of integration in area terms. The area that is talked about today for development is the village We want the village as the unit for rural development and take it for granted that it is both an effective and a viable unit for the purpose. But the village is not a homogeneous concept. In fact, we have never undertaken a conceptual analysis of the village but treat it as a description that includes within its range all human settlements that the census classifies as a village. But, is the census village a viable unit? Does it contain the area and population base necessary for integrated development? Can we bring about either full employment or distributive justice and elimination of poverty or provision of a minimum of developmental and welfare services or popular participation or even maximisation of output or productive application of science and technology by treating the village identified by the census as the unit for development? I have no doubt in my mind that the answer to these questions is in the negative, and that we will not get the full dividends from developmental programmes nor achieve the admitted goal of rural development without a significant enlargement, by regrouping or otherwise, of the majority of the areas which the census now classes as villages

I shall now illustrate my thesis by referring to the facts of the case. According to the census of 1971, India had a rural population of 438.9 million who were living in 5,67,338, inhabited villages. But the distribution of this rural population by number and population size is of a skewed character that is parallel with the skew phenomenon that characterises the urban population, the distribution of income and wealth, and sharing of the good things in life, and in fact, the entire social and economic structure of the Indian policy. I give below the percentage distribution of India's rural population by number and population size of India's villages in 1971:

Village population size		Number	Population
Less than 500		55 34	16.37
Between 500 and 999		23.08	21.50
Between 1,000 and 1,999		14 23	25.77
Between 2,000 and 4,999		6.25	23.82
Between 5,000 and 9,999		0.86	7.45
Above 10,000		0.24	5. 9
	Total	100.00	100.00

Of India's 5,67,338 villages, as many as 3,52,023 had a population of less than 500 each, while of this number, more than 50 per cent had a population of less than 200 each. How is it possible to have either developmental or welfare services, which would have quality and effectiveness, for settlements containing 40 or 100 families? What kind of economic viability can such small population units have in terms of either production or distribution or employment or needed changes in their Power and social structure, And in the absence of economic viability, what can be the effectiveness of the vast amounts we are spending on their development as individual units? These are basic questions which have received inadequate, if not nil attention, in all the discussions we are having on rural development or in the programmes that are formulated for such development. It is high time that we started paying attention to this basic problem of the minimum rural settlement that should form the basis for the planning and implementation of all programmes of integrated rural development The problem is not only to determine the size of such a minimum unit but also to devise ways and means for bringing such minimum units into existence by grouping clusters of villages with necessary social, economic and resource links into new viable villages and establishing the necessary transport facilities between the villages composing any given cluster so that each cluster of villages constituting a new village can function as one integrated unit

The seriousness of the problem of uneconomic and unaviable village size becomes even more evident when we desegregate the national totals and look at the position in the major states of the Indian Union. Leaving out Kerala which stands in a class by itself, and to which shall revert later, the proportion of the number of villages with population between 500 each to the total number of all villages in each state varies from 18.9 per cent in Tamil Nadu to 66.4 per cent in Madhya Pradesh and 73.1 per cent in Himachal Pradesh, while the proportion of the rural population residing in villages with less than 500 persons to the total rural population in each state varies from 2.8 per cent in Tami Nadu to 38 percent in Madhya Pradesh and 66.8 per cent in Himachal Pradesh.

The problem of uneconomic or non-viable villages is much sharper in the northern, central and eastern regions of the country with the exception of Haryana, followed by the western region, Maharashtra having a worse position than Gujarat. The situation is much better in the southern states with the exception of Karnataka, while Kerala stands in a class by itself.

According to the census, Kerala has a rural population of 84.8 per cent But the composition of his rural population classified by village population size is totally different from that of the rest of India, with nearly 87 per cent residing in villages with a population of more than 5,000 each and less than one per cent residing in villages with a population of less than 2,000 each, classed as rural because of the dominance of agricultural and allied activities in the occupational distribution of the population It is obvious that rural settlements in Kerala are quite viable from the point of view of developmental and welfare services, as the bulk of their rural population live in villages having a population of 5,000 and more persons. This fact is undoubtedly a major explanation of the vast progress that Kerala has made in the provision of educational and health services to its rural population, as compared to other states, its relatively greater success in family planning and reduction of the birth-rate and death-rate in rural areas, and the greater capacity for cohesion and collective

organisation it has been able to achieve among its rural population.

While it may not be possible for the other states in the Indian union to emulate the example of Kerala and have their rural population residing in settlements with 5,000 people and above. Kerala's striking position in its village composition and its developmental experience clearly indicate the need for enlarging the size of the operational village in the rest of India My own view is that a population of 5,000 would be an ideal size for a viable village unit, but this seems to be beyond the bounds of practicability in the foreseeable future I suggest therefore two alternative models for village restructuring and re-composition in order to make the Indian village a viable unit for integrated rural development. One is to aim at a village with not less than a population of 1,000 persons and the other with a population of not less than 2,000 persons. The first model would involve a re-structuring of 4,51,623 villages with a population of 166 3 million in order to convert them into 1,66,286 villages or 36 8 per cent of their existing number The second model would involve a re-structuring of 5,33,596 villages with a population of 279.4 million in order to convert them into 1,39,724 villages or 26 2 per cent of their existing number As the second model will also present immense difficulties in implementation, I would suggest the first model for adoption

The task appears to be gigantic but not as formidable as it appears at first sight Except in states like Himachal Pradesh and Tamil Nadu and Kashmir and parts of states like Madhya Pradesh, Bihar and Orissa with their triba belts, U.P. with its hilly areas and Rajasthan with its desert background, most Indian villages are in close proximity to one another, separated by a distance of 2 to 7 or 8 kilometres; and it should not be difficult to reconstitute them into single villages with rural roads designed to link thee clusters of villages into one village rather than merely attempt to link all villages to the towns as is the case with the present rural roads programme. An exercise undertaken recently by me in connection with my project for integrated human resource development of a backward district in Karnataka state has given me the feeling that it is possible to find such clusters for being formed into single villages, and this has given me some confidence for putting forward a proposal for the re-structuring of villages to form them into viable villages or rural settlements that can form a more economically efficient base for integrated rural development than the existing villages with their very small populations

Reconstitution of villages is a state subject But the state governments already have the power to undertake such a reconstitution Thus, for example, the Karnataka Land Revenue Act of 1964 empowers the state government to, I quote; "Subject to such conditions and in such manner as may be prescribed, alter or add to the limits of any village or amalgamate two or more villages or constitute a new village for the purpose of this Act" Then again the Karnataka Village Panchayats and Local Boards Act of 1959 includes a similar provision for village reconstitution, I quote: "Whenever the government, after making such inquiry as may be prescribed, is satisfied that any area comprising a revenue village or a group of revenue villages has a population of not less than one thousand and five hundred but not more than ten thousand, it shall by notification in the official gazette, declare such area to be a village" All that is now required is to include the concept of viability for integrated rural development as a major criterion for the re-structuring and enlargement of existing villages, bringing within its scope education, health, cooperation, panchayats, other developmental and welfare services, and use of science and technology for improvement of equipment and skills in rural production.

Other Major Factors

There are three other factors bearing on rural development to which I would like to make a brief reference The first is the emphasis that is now being laid on distribution of agricultural land to landless labour It needs no special arguing to show that the possession and cultivation of agricultural land does not by itself ensure the abolition of poverty, if the size of the holding cultivated falls below a particular minimum. A recent study of a taluk in East Godavari district has revealed that even with a 100, per cent irrigation and according intensity of 1 7 to 2, the annual income earned from

Number			Population		
Rank	State	Percentage	Rank	State	Percentage
1.	Himachal Pradesh	93 07	1	Himachal Pradesh	66 81
2.	Orissa	71 87	2.	Orissa	33 78
3	Madhya Pradesh	66 35	3	Madhya Pradesh	32.32
4.	Jammu & Kashmir	60.70	4	Jammu & Kashmir	25.02
5.	Rajasthan	59.39	5	Rajasthan	21.78
6.	Bihar	56.13	6.	Assam	21.11
7.	Assam	55 61	7.	United Provinces	19.21
8.	United Provinces	55.27	8.	Bihar	17.08
9.	West Bengal	48 75	9.	Karnataka	14.71
10.	Karnataka	48.14	10.	West Bengal	13.60
11.	Punjab	42.65	11.	Punjab	13.05
12.	Maharashtra	39 52	12.	Maharashtra	10.68
13.	Andhra Pradesh	35.76	13.	Gujarat	9.12
14.	Gujarat	35.05	14.	Haryana	6.82
15.	Haryana	29.98	15.	Andhra Pradesh	5.62
16.	Tamil Nadu	18.87	16.	Tamil Nadu	2.81
17.	Kerala	0.32	17.	Kerala	0.01
	ALL INDIA	55.33		ALL INDIA	16.37

cultivating household to cross the poverty line. And 35.7 million operational holdings out of a total of 70.5 million or more than 50 per cent are of a size of less than one hectare of land. The average size of an operational holding in this category is only 0.41 hectare, and its irrigated component is only 0.12 hectare. Though these marginal and sub-marginal holdings cover only 9 percent of the total area of land operated in Indian agriculture, they account for more than 50 percent of India's cultivator household. Would it not be desirable to use any land available for redistribution to increase the size of the holdings of these marginal and sub-marginal farmers rather than add to their number by giving lands to the landless labourers? A number of studies have shown that the marginal and sub-marginal farmers, whose land holdings are obviously below the minimum economically viable size, have an income level not different from that of agricultural labourers in fact in some areas agricultural labourers earn a higher income than these marginal and sub-marginal farmers From the strictly economic point of view and for speeding up the process of industrialisation, is it wise deliberately to increase the number of the under-employed in the rural economy? Is not this tenuous link to land, where the holding is sub-marginal and incapable of giving an acceptable minimum living, a disincentive to the motivation to initiate projects of non-agricultural activity and thus diversify the economic structures and lead to larger production and more full time employment?

In my considered opinion, it was wrong to club together marginal and sub-marginal cultivators and landless labourers as one economic category to whom the same prescriptions are sought to be applied for the elimination of their poverty. The task of integrated rural development is hampered by not having a policy of an economically viable minimum agricultural holding, which should be extended to the maximum possible extent to the existing marginal and sub-marginal farmers and make Indian agriculture a more worthwhile occupation for the vast number of cultivators who now account for such a small proportion of the total agricultural output. I would further suggest that landless labourers should be placed in a position where their wages would give them an income that brings them above the poverty line instead of keeping their number at a level which keeps them prepetually below the poverty line. For dealing with surplus agricultural labourers, I would suggest that we devise programmes of full time employment or self-employment activity in the non-agricultural field that would speed up the process of industrialisation and give a more balanced structure to the Indian economy

Population Size	Number of villages		Population of villages	
	Number	Percent of total	Number	Percent of total rural
Below 500	6	0.38	1151	0.1
500 to 999	18	1.14	13,201	0.10
1000 to 1999	57	3.62	86,695	0.60
2000 to 4999	395	25.11	1477,542	10.30
5000 to 9999	587	37.33	4143,999	28.88
Above 10000	510	32.42	8625,456	60.11
Total	1,573	100.00	14349,574	100.00

The second factor is the basic connection that exists between development, and effective and motivated participation in the developmental process by the vast body of the rural poor belonging to the category of marginal and sub-marginal farmers Such participation by the poor among the cultivating classes is not possible unless there is a fundamental change in the existing rural power structure in regard to the utilisation of the facilities created by government for rural development, and a radical alteration in the existing structure of ownership of land and other productive assets among the rural population. Some steps in this direction are being taken under the rural provisions of the twenty-point programme and the popular movement for literacy, family planning and afforestation under the five-point programme; but we have a long way to go before we can succeed in reorienting and reconstituting the rural power structure for facilitating the process of rural growth with social justice and the elimination of rural poverty The magnitude of the task on the side of ownership of all assets, including land, equipment, and houses, has been brought out clearly by the recently published survey by the Reserve Bank on the assets of rural households. According to this survey, more than one third of the total number of rural households owned assets valued at less than Rs. 2,500 each. They included one-fifth of the total number of cultivators, nine-tenth of the agricultural labourers, more than seven-tenth of the artisans, and about two-thirds of "other" non-cultivators. The average value of assets per household in this group worked out to only Rs. 987, of which buildings alone accounted for Rs 423, and durable household assets for Rs. 137. Productive physical assets taken together averaged only Rs 392 of which again land alone accounted for Rs 242 Live-stock accounted for Rs 122 while implements and machinery accounted only for Rs. 28 and financial assets for only Rs. 20 The vast inequality in agricultural land holdings has been revealed by the Agricultural Census of 1970-71, 52 percent of the holdings being below one hectare each and accounting for only 10 7 per cent of the gross cropped area, while 0 9 or less than one per cent of the holdings were each above 20 hectares and accounted for 10 5 per cent of the total gross cropped area or almost as much area as was accounted for by 58 times their number. Unless some radical steps are taken to bring about a more equitable distribution pattern of land and other productive assets in the rural areas, it is difficult to see low it is possible to bring about either integrated rural development or the abolition of poverty in rural India

The third factor is the inability of science and technology by itself to solve the problem of rural poverty. Science and technology are, as we have seen in our experience of the green revolution, neutral to size only in theory, indivisible assets and varying degrees of access to divisible assets making for a widening of the income gap and a continuing of poverty at the lower and lowest levels of asset holdings. It is good that in recent years, Indian science and technology has turned its attention to the development of technology that would be labour intensive, based on local resources, and usable by rural personnel with limited or nil financial resources. But it would be

(*Contd. on Page* 34)

THE PROBLEMS OF JUTE INDUSTRY

P.C. UPADHYAYA

JUTE INDUSTRY is one of India's oldest industries with 67 mills in existence at present. The first modern power driven mill was established at Rishra near Calcutta in 1859 with the initiative of an Indian and an Englishman Today barring a few units, all mills stand clustered on both sides of the river Hooghly near Calcutta

Jute is a glossy fibre and grows on a plant which is three metre high The plant is retted in clear water to obtain the golden fibre. After the partition of our country in 1947 our jute mills faced great shortage of raw jute While all the jute mills were situated in India. out of 2.3 million acres of pre-partititoned area under jute crop, Pakistan got more than 1.8 million acres. The same product now had to be imported from Pakistan. To ease the situation, the Government took immediate steps to cultivate jute in India Table I shows the production of raw jute since partition From this table it is clear that though immediately after partition a substantial improvement in the production of jute did take place yet the position in recent years cannot be called satisfactory. In fact, a situation of stagnancy is prevailing in this crop

The importance of raw jute in jute products is obvious from the fact that it accounts for 65 to 75 per cent of the total conversion cost. Labour cost comes to 12 to 18 per cent and the balance is accounted for by overheads Thus the value added to the raw material is proportionately less and the fortune of the industry rests to a marked extent on the amount of production of the fibre and the price.

The middlemen have been operating since the beginning of the jute industry. The price difference between the price paid by the manufacturers and that received by the growers is around 25 per cent. If the cost of storage by the manufacturers till the manufacturing process begins, is also taken into account, the difference spreads to 40 per cent. Thus there is an urgent need for correction in this matter, so that the grower gets his due and the manufacturer also does not have to pay such a heavy price The jute market today is highly unorganised As much as 60 per cent of the produce is sold to the money lenders who together with other middlemen appropriate the major part of the profit

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Fair Price for Growers

In order to give fair price to the growers, the Jute Corporation of India has been made responsible for buying jute at the minimum support price of Rs 135 per quintal from the grower. However at present the Corporation does not operate fully. Its purchases are only 12 to 13 per cent of the total crop. According to the estimates made raw jute production during 1975-76 was very low, (around 5 million bales) resulting in an unexceptionable increase in its price For example throughout 1975-76, the market quotations of Assam Bottoms (a variety of jute) ruled at an average of Rs 178 per quintal against the statutory minimum price of Rs 135. A bumper crop of 7-8 million bales is expected during 1976-77. However paddy-jute price ratio is also favourable this year in West Bengal hence there will not be much diversion of jute land to paddy cultivation Weather conditions have also been favourable right from the beginning in Assam, Bihar, Orissa and West Bengal which are the major producers. In order to increase total jute production the Indian Jute Industry Research Association (IJRA) is engaged in developing high yielding varieties of jute capable of withstanding drought, flood and rot. It claims to have succeeded but is at the final stage of implementation.

TABLE I
Production of Raw Jute

Pre-partition	(millions of bales)
Output	6 5 to 7.5
1947-48	1 65
50-51	3.50
55-56	5.40
60-61	5.20
65-66	5 80
70-71	6.10
71-72	6.80
72-73	6.10
73-74	7 80
74-75	5 50
75-76	5 00
76-77	7 50 to 8 (expected)

Jute can be divided into better quality jute and lower quality jute. It has been found that in India better quality finds way into the traditional uses as gunnies and hessian and manufacturers are not able to derive full benefits.

Full economic exploitation of the jute crop is the need of the day. This can be possible only if the leaves find way towards the vegetables, the stick towards paper-making and the fibre towards some sort of wearable cloth or other non-traditional uses? Since jute is grown in an extensive area and the size of each lot depends on acreage, the problem of an organisation to handle the collections of leaves etc. has to be faced and solved.

West Bengal produces over 60 per cent of jute and 90 per cent of jute goods. This is the reason why this State has to depend on other states in the matter of food and even textiles. The extension of area under jute cultivation is to a large extent responsible for this trend. Because of the differences with Pakistan this had to be done. Jute mills could not be allowed to close down and the State had to undertake Jute cultivation despite the fact that the West

Bengal land is not as productive as the waterlogged areas of East Bengal, its cost of production is higher and the quality of jute produced is also poor.

With the emergence of Bangladesh however there may be some easing of the situation. We have a favourable balance of trade with this country and she can supply us jute, without starving her people, as a corrective measure. Bangladesh has much more jute than her industry can absorb and the situation is not likely to be reversed for a long time to come. Even the theory of comparative advantage demands that we should buy superior jute from Bangladesh so that our products may compete better in the world market Moreover the recent decline in the European jute industry has resulted in reduced exports of jute from Bangladesh to Europe Thus Bangladesh must sell jute to India

Jute Products—the Falling Demand

The figures below in Table II reveal the present crisis in the jute industry In the last few years the output of jute manufactures has declined considerably and the performance in the field of exports has been unimpressive

Jute industry thrives because of foreign demand the fall of which is the basic reason for the present crisis Recently American purchases of jute goods have found a very small part of their normal offtake because synthetic materials have proved their competitive strength inspite of the oil crisis In fact they have undertaken special R&D (Research and Development) efforts and are going to so scale their output that in their opinion jute goods would not have any chance to compete at all

Indian government gradually abolished export duty on jute goods to make them competitive but the recent 57 per cent devaluation of Bangladesh currency has put our jute goods back at their original place Such competitions should be eliminated through inter-national agreements

Recession in the American economy and the resulting reduced housing construction activities is another reason for the falling American demand. Though the economy is showing recovery, the constructional activities are still lagging behind. Houses are the chief sources of demand for jute goods.

Even in the markets of EEC and Japan, synthetic materials are proving to be quite competitive inspite of the rise in oil prices. Thanks to their R&D efforts.

Recently Russia is emerging as an important buyer of hessian but the quality and price of Bangladesh jute goods being more attractive Indian goods are likely to suffer.

Due to all these reasons the huge stocks of jute goods are accumulating with mills causing storage problems and blocking huge funds, though currently internal market is absorbing more of jute goods than before.

The Rising Cost of Jute Products

There was a short crop of raw jute in 1975-76 causing rise in prices and recently wage agreements with labour have also increased the cost of production. The best issues involve social causes and though a bumper crop is expected during this year i e 76-77, not much gain can be expected since statutory minimum price is fixed. Unfortunately unscrupulous speculators have created more problems for the industry by causing undue rise in the market price of jute goods In 1974 many foreign buyers could have switched over to jute goods from synthetics but for the rise in prices due to heavy speculative activity that year.

Something has to be done about the high freight rates charged by various shipping lines carrying jute products. In some cases the price of jute goods rises by as much as 28 per cent due to high freight As per GATT observation the freight cost should not exceed 12½ per cent of the f.o.b. value of export products. Either shippers should reduce their freight rates or government should reimburse the excess to render the jute goods more competitive

Problem of Modernisation

The spinning section of the industry is almost modernised and new products are being developed to diversify the markets

The main problem is the modernisation of the milling section. For this finance is needed. The financial health of the industry has been poor since long According to an RBI study since 1965-66 profitability has been very low in this industry and the rate of dividend on ordinary capital since then has been around only 3.4 per cent The government's policy is to make funds available for modernisation through Industrial Development Bank of India (IDBI), but the condition is that this should not result undue hardship to the labour Naturally the industry is very cautious about modernisation

The industry was thought to have

TABLE II
Production and Exports of Indian Jute Manufactures

Year ending June	Production ('000 tons)	Exports ('000 tons)	Percentage share of export in production
1951-52	960	808	84 2
52-53	906	687	75 8
53-54	880	824	93.6
54 55	1011	876	86.6
55-56	1013	873	78.4
56-57	1042	877	84 2
57-58	1073	818	76.2
58-59	1057	843	79.8
59-60	1092	879	80 5
60-61	1023	777	76.0
61-62	1069	806	75.4
62-63	1218	894	73 4
63-64	1249	932	74 6
64-65	1320	922	69.8
65-66	1227	844	68 8
66-67	1152	764	66 3
67-68	1141	719	63.0
68-69	932	637	68.3
69-70	969	501	51.2
70-71	979	653	66.7
71-72	1138	670	58 9
72-73	1043	578	55 4
73-74	936	562	60.0
74-75	938	583	62.2

(*Source* : Commerce July 31, 1976)

a bright future in sacking and hessian cloth to be used as bagging and wrapping material. But since 1957-58 carpet backing and other varieties of jute manufactures have become more popular and valuable. At present we are producing about 20 individual items of jute products, according to the 'Annual Survey of Industries'. As one of the biggest foreign exchange earners, the industry is very vital to Indian economy. However today most of the jute mills in India are hovering between survival and closure. Out of 67 mills, 12 mills remained closed in July '76 and many were declared sick. The Indian Jute Mills Association calls the whole industry as a 'sick industry'. Some of the reasons for its sickness originate outside India say unnecessary price war among the producers of jute products. Recently there has been a move for an international jute community. India, Bangladesh, Nepal, Burma and Thailand are the major developing countries producing jute and jute goods These countries had a consultative conference in Dacca in the first week of October '76 They have drawn a programme aiming at stabilising the prices of jute and jute goods and export earnings in real terms Finding out new uses of jute through intensive research is an integral part of their programme They have also announced that their next step would be an international commodity agreement for the setting up of an internationally supported buffer stock of jute and jute goods

10 Years of Railways

		1965-66	1975-76
1.	Total Investment	Rs. 3255 crores	Rs 5344 crores
2.	Annual Gross Revenue Receipts	Rs. 733 crores	Rs 1767 crores
3.	Contribution to General Revenues	Rs. 103 crores	Rs. 198 crores
4.	Store Purchases	Rs. 329 crores	Rs. 777 crores
5.	Employees	Rs. 13.52 lakhs	Rs. 14.31 lahhs
6.	Total Route Kilometres	58399 kms	60216 kms
7.	Electrified Route Kilometres	2423 Kms	4649 Kms
8.	Electric Locomotives	403	796
9.	Diesel Locomotives	727	1803
10.	Passenger Coaches	22714	26961
11	Electric Multiple Unit Coaches (for suburban trains)	1355	2214
12.	Wagons	370017	395,256
13	No of Originating Passengers	208 crores	295 crores

The New Agreement with EEC

"An agreement on trade and commercial cooperation in jute" has been made with EEC which will expire on December 31, 1979. A Joint Cooperation Committee has been formed under this agreement which will examine among other things ways and means of diversifying the end uses of jute products The other important tasks for the Joint Council Committee are to make suggestions for cooperation between Indian and European research establishments, and industrial and commercial interests. This jute agreement is in keeping with the Indo-EEC commercial cooperation agreement.

Tariffs and quotas are an important part of our agreement with the EEC. Our aim is to have duty free entry for all the categories of jute goods into the Common Market but until two years from now this aim will not be fulfilled However from January 1977 the highest tariff will be below 5 per cent Jute yarn will find duty free entry from January 1, 1977 into all the nine markets The new agreement has succeeded in achieving progressive elimination of Community quotas and tariffs

So far as UK is concerned today our quotas are about 50 per cent higher for carpet backing and specialities such as wall coverings By the end of 1979 when the recent agreement with EEC expires the quotas will have doubled for the EEC as a whole. Britain and Denmark are already granting duty free entry for all our jute products

However mere elimination of tariffs and quotas will not lead to higher exports Foresight is also needed to push up exports, and the jute interests have to gear themselves to take advantage of the opportunity being made available

Jute industry can survive only if it expands its market. In order to do so R&D efforts and modernisation of mills are a must So far as the unemployment problem with modernisation is concerned, some alternative way has to be found. The issue is very delicate, the government is not in a mood to nationalise the jute industry. Closing the industry may be an alternative but it would result in more unemployment than modernisation of the industry Since spinning section has been only recently modernised it would not be wise to close the industry

The recently formed Jute Manufacturers Development Council may provide an answer The Council will make intermill comparisons in order to weed out the inefficient units It is also raising funds and inviting research projects for financial assistance There is definitely a case for merger of sick units with the efficient ones in the context of modernisation

The recent step of the government to instruct IDBI to look into the modernisation needs of the industry is a step in the right direction and an early action in the matter is required □

AN AUTHORITY FOR THE CAUVERY VALLEY

T.G. NALLAMUTHU

WHILE MANY other states, have more than one major river, Tamilnadu's dependence on Cauvery is so great that any fluctuation in its flow can tilt the fortunes of this state alarmingly For example when the south west monsoon is good, the catchment areas in Mercara (Karnataka) get copious rain and the flow into Mettur is sufficient to irrigate eleven lakh hectares in Tanjavur and Tiruchirapalli districts, after irrigating a few lakh hectares in Karnataka But when the rain is below normal or delayed, as was the case this year, lakhs and lakhs of farmers in Tanjavur and Tiruchirappalli are affected and agricultural production of Tamilnadu and the whole country suffers serious setback

Cauvery is different from other major Indian rivers in many respects Besides depending entirely on the south-west monsoon its flow is far less as compared to even

Cauvery is the life line of Tamilnadu. The 800 kilometre long river flows through its major part in Tamilnadu, enriching the lives of lakhs and lakhs of people.

Krishna and Godavari, let alone Narmada, Ganga and the Brahmaputra The water flow in the Cauvery is only about fifty per cent of Krishna in the best years In contrast water utilisation in Cauvery for irrigation and power is 95 per cent Thanks to the foresighted leadership of the Chola Kings and pioneering engineers of Karnataka, Cauvery was harnessed over a hundred years ago for the welfare of the people That is why the Cauvery water dispute is much different from other water disputes, and needs urgent solution While in the case of Narmada, Godavari and Krishna water is being wasted into the sea pending an agreement among the concerned states, in the case of Cauvery, not a drop of water is wasted While the delay in the settlement of other river water disputes does not much affect the existing irrigated areas and existing agricultural production, in the case of Cauvery the continued dispute threatens the life of lakhs and lakhs of farmers in Tanjavur and Tiruchirapalli and also the economy of the state It is in this context that the centre has seized the initiative and taken upon itself the responsibility to solve the dispute instead of referring it to a tribunal for arbitration. The experience of other river water disputes has shown that tribunals take several years and in the end the award is rejected or not implemented by one state or the other. Therefore, the present effort to find a lasting solution to the Cauvery waters dispute is very welcome

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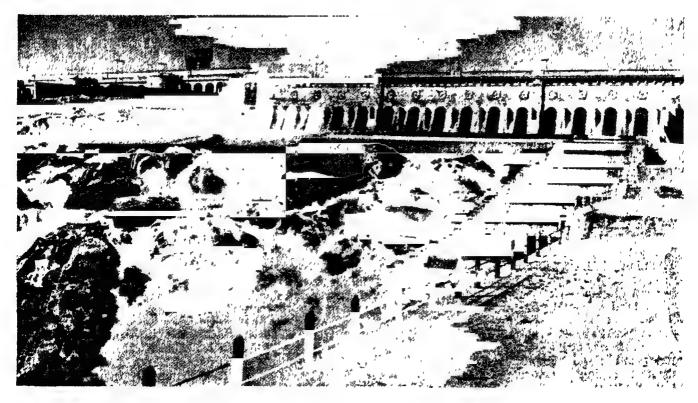
The Mettur reservior holds the key to the irrigation potential of Tanjavur district, considered to be the granary of Tamil Nadu

The Cauvery waters dispute is almost a century old. Tamilnadu was the first to utilise the Cauvery waters because of the vast delta in Tanjavur. The water was impounded in Mettur and Kallanai for irrigation. The first agreement between Tamilnadu and Karnataka was reached in 1892 over the construction of a dam across the Cauvery at Kannambadi near Mysore Dispute arose whether it should be a mere power project or it should cover irrigation also. Therefore another agreement was reached in 1924, enabling the construction of a dam for irrigating 50,000 hectares, while at the same time ensuring a certain minimal water flow into Tamilnadu. This agreement was to be renewed after fifty years Therefore efforts were started in 1968 to reach a new accord. Meanwhile Kerala joined the dispute and said that the 1924 agreement was not binding on it and it was free to utilise the waters of Kabini and Bhavani, the two tributaries of Cauvery which have their origin in Kerala Meanwhile, Karnataka declared that the agreement had lapsed and therefore it was free to utilise the water as it desired. This caused anxiety to lakhs and lakhs of farmers in Tamilnadu during lean years The last round of talks was held in November 1947 when the three chief ministers came very near to an agreement In fact they agreed in principle, to set up a Cauvery Valley Authority, but differences on the quantum of water now being utilised by the states and the amount of water that could be saved by Tamilnadu and Karnataka could not be bridged and therefore the accord was stalled. Thanks to the new spirit of understanding and mutual, cooperation generated has the emergency, an agreement has now been made possible though much headway is yet to be made with regard to the actual sharing of the waters both during normal years and lean years. The sense of urgency displayed both by the centre and the states is enough proof that final solution is round the corner.

Hogenakal falls on Tamilnadu-Karnataka border can yield 250 MW of Power

The cauvery valley authority will be the second of its kind in the

A view of the Krishna Raja Sagar Dam, Karnataka

OUR CORRESPONDENT PASSES AWAY

THE CHIEF EDITOR and the members of the staff of YOJANA deeply regret to announce the untimely death of their distinguished colleague Shri Siddharthan Kariyal on February 10.

Still in his thirties, Shri Kariyal was a brilliant journalist and as a Correspondent he had undertaken a number of tours to report on development and change Among his most distinctive contributions were his reports on Sikkim, the Andaman and Nicobar Islands and Arunachal Pradesh.

Shri Kariyal is survived by his mother, wife and two children.

The sprawling Cauvery River, irrigates lakhs of hactares of land in Tiruchi and Tanjavur districts. Tiruchi Rock Fort can be seen in the background.

country, after the Damodar Valley Authority. The decision to set up an authority instead of merely finding the solution on the share of the three states indicates that the centre will continue to exercise supervision and control over the planning and execution of future projects and the integrated working of the existing projects for the most economic use of natural resources

The exact functions of the authority have yet to be decided by a committee of secretaries of the three states and it will be considered at the next meeting of the Chief Ministers. Another committee representing the three states and the centre will work out the manner of sharing the available water in lean years. The committee will also work out quantities of surplus water that might be presently available Another important highlight of the agreement is on economising water use in the delta, so that the surplus could bring more and more hectares under permanent irrigation. In this context the Centre's assurance that the savings will not affect the existing requirements of established ayacuts, has been welcomed by the people of Tamilnadu.

The Tamilnadu Government has already made a perspective plan for the modernisation of the canal system for improved water management and the world bank has also shown some interest in it This project will be a gigantic one and will take at least fifteen years to yield substantial result In fact according to the perspective plan, the remodelling and relining of canal systems in the state will require over Rs 3000 million Raising so much of resources will be difficult, but the determination of the centre and the states to bring more land under cultivation for increasing agricultural production would go a long way in achieving this object

The New Delhi agreement is a landmark, throwing open possibilities of greater use of the existing flow For example, the water fall at Hogenakkal on the Karnataka Tamilnadu border could be used for the urgently needed power (250 MW) as well as irrigation in the backward areas of the region. There is also scope for reuse of the flow below Mettur for generating more power (300- :00 MW) All these projects and many more had been held up for want of a climate of understanding and cooperation among the concerned states. With the new agreement there is no doubt that thousands of more hectares of land will be brought under irrigation in the Cauvery valley contributing to India's self sufficiency in agricultural production. □

Yojana Quiz

1. Name the following·
   (*i*) Bird that never builds a nest
   (*ii*) City of Sky scrapers
   (*iii*) Reptile that changes its colour
2. What is the importance of the following dates in Indian History?
   (*a*) 2 October, 1869
   (*b*) 8 August, 1942
   (*c*) 20 October, 1965
   (*d*) 18 May, 1974
3. What is the
   (*a*) Biggest planet
   (*b*) Largest Ocean
   (*c*) Longest lake
   (*d*) Planet furthest from sun
4. Where the following units are situated?
   (*a*) Bharat Dynamics Ltd ,
   (*b*) Bharat Earth Movers Ltd.,
   (*c*) Mishra Dhatu Nigam
   (*d*) Garden Reach Workshops
5. With the exception of two rivers the trend of the rivers of Tamil Nadu is from west to east down to the Bay of Bengal. What are those two rivers?
6. The only Indian incidence of wild horse is reported from.
   a) Gir forest, Gujarat
   (*b*) Sundarbans, West Bengal
   (*c*) Vedaranyam in Tamil Nadu
7. The Champion Reefs Gold mine—one of the deepest working mine in the world is in
   (*a*) Karnataka, India
   (*b*) South Africa
   (*c*) California, USA
8. With what games do you associate these
   (*i*) Bye
   (*ii*) Cannon
   (*iii*) Chinaman
9. Name a metal that is not solid?
10. What weight of air do we carry?
11. Why does an individual's nose run when he cries?

Answers

1. (*i*) Cuckoo, (*ii*) New York, (*iii*) Chameleon
2. (*a*) Birth of Mahatma Gandhi. (*b*) Quit India Movement was launched by the Indian National Congress. (*c*) Chinese invation of India. (*d*) India's first atomic explosion at Pokhran in Rajasthan
3. (*a*) Jupitor, (*b*) Pacific, (*c*) Caspian Sea, (*d*) Pluto
4. (*a*) Hyderabad, (*b*) Bangalore, (*c*) Hyderabad, (*d*) Calcutta
5. The Kodaiyar and the Pazhayar
6. (*c*) Vedaranyam in Thanjavur district, Tamil Nadu
7. (*a*) Kolar Gold Fields, Karnataka, India with a depth of 2,885 metres.
8. (*i*) Cricket, (*ii*) Billiards, (*iii*) Cricket
9. Mercury
10. 14.72 lbs per sq inch.
11. When a person cries, some tears gather in the eyes and there is a watery discharge from the nose when tears are carried from the eyes to the nasal cavity

Quotation Box

No other developing country really has an open society as we have. Most of them have much one-person-catred systems.

* * * *

For India to progress—not merely to progress, but survive—we must change all the times.

—Indira Gandhi

* * * *

Nothing falls from the heavens, nothing is achieved without hard work and sacrifice

—General T.N. Raina

* * * *

Asking an editor to survey the world's Press is like inviting a nonagenarian for an afternoon's stroll round a graveyard.

—Harold Evans in Newsweek

* * * *

To my amazement, I have been faithful to my husband for 14 years

Meline Mercouri, Actress

* * * *

I would like to go out of office with people being able to say that I always told the truth.

Jimmy **Carter**

* * * *

It is difficult for me to see how law can achieve the purpose of a secular socialist state unless the sphere of "law" was wide enough to embrace control of what might be pernicious and exploitative parading under the garb of religion

—Justice M.H. Beg

* * * *

I am not going to do anything that would be politically unwise.

—Z.A. Bhutto

* * * *

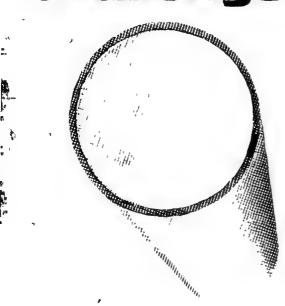
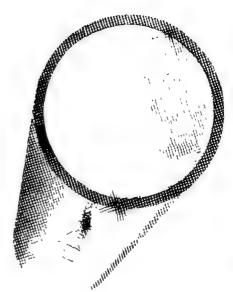
Art, the way I understand it, should give out all the positive aptitudes of man, his spiritual richness and courage

—Humberto Solas, Cuba

* * * *

To be able to judge a film, certain amount of training is required. Given this training and experience, it is not difficult to judge a film.

—Girish Karnad

The Wall-to-Wall Challenge

Take a close look at a bazar tube It is thin-walled Also, it isn't galvanised properly, the zinc coating is thin and patchy You naturally pay less for this tube—but in the long run it will cost you more because it will not last long

Examine an ITC tube, popularly known as TATA pipe. It has a thicker wall—complying with the specification IS: 1239 (Part I)—1973 It is also properly galvanised. You pay more for right quality—for long years of trouble-free service.

The strength of your tubes lies in the wall thickness

Correct wall-thickness of ITC tubes enables threads to be cut to perfect form, leaving adequate material at the root This ensures strong and reliable joints that don't break or leak

Protected against corrosion

The duration of protection given by zinc varies directly with the thickness of the coating applied ITC galvanised tubes (G I pipes) have a zinc coating that always meets the requirements of the specification.

Stress-free

ITC tubes, made by the Fretz Moon process, are free from any kind of stress since the forming, welding and sizing are done in the hot state. Being hot finished, ITC tubes can be cold bent.

ITC the most trusted trade mark in steel Tubes

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Cooperative Banking
A New Approach

ANAMOL SINGH

UNDER THE CHANGED order during 1975-76 the nation has witnessed several outstanding attainments such as a growth rate of over 5.5 per cent, putting the economy back on its normal growth path, price stability with a check on inflation, significant rise in the rate of domestic saving and investment and a move towards an eventual emergence of a viable external payment position. The Cooperative Banking has also taken great strides after the declaration of internal emergency and the inception of New Economic Programme in mid-1975 An unheard growth rate of 8 per cent in agriculture sector proved a reality during 1975-76 partly due to favourable weather condition and partly due to a high level of investment in the agricultural economy.

This for instance is reflected in substantial increase in the agricultural inputs like better seed, fertilisers, insecticides, power and water The performance in respect of good grains production was particularly noteworthy Total production of foodgrains is expected to establish an alltime record of over 116 million tonnes. This would have not been possible if a network of 26 state cooperative banks, 341 central cooperative banks, 1,53,000 primary agricultural credit societies and 19 central land development banks functioning in the country had not rendered yeoman service to the agriculture sector by pumping required capital through their lending programmes and projects.

Cooperative Credit Policy

The main aim of the Cooperative Credit Policy during 1975-76 continued to be to subserve the national objective of development within the framework of monetary discipline. The main emphasis continued to be on the reduction of regional disparities in cooperative credit development and the narrowing down of the existing credit gaps. The principal programmes undertaken are (1) reorganisation of the primary agricultural credit societies into viable/potentially viable ones (ii) organisation of new societies like the Farmers' Service Societies (F.S.S) and large sized multipurpose societies (LAMPS) particularly in the tribal areas, (iii) rehabilitation of weak central cooperative banks and state cooperative banks, (iv) gearing the movement to meet the needs of the weaker sections of the community, (v) toning up of recovery, (vi) introduction of universal membership, (vii) observance of financial discipline and seasonality in advancement and recovery, (viii) linking of borrowings of cooperative banks' with their efforts to mobilise deposits, (ix) provision for common cadres and trained staff, (x) arrangement for a full time, capable top executive as managing director especially at the state level.

Twenty Point Economic Programme

Cooperative banks paid special attention to the implementation of 20 point economic programme As the measures taken for the liquidation of rural indebtedness considerably dried up the credit line from non-institutional sources such as money lenders, the task of distributing consumption loan at the instance of Government of India and R.B.I. was taken up by cooperative banks and societies.

Provision for the loans to individuals against gold and silver ornaments were also made. With a view to making alternate sources of institutional credit available to the borrowers affected by debt relief measures, loans for consumption purposes were allowed along with production credit to farmer members of primary credit societies belonging to weaker sections for specified purposes such as medical aid, education, death ceremonies, marriages etc. The quantum of such loans however was limited to 10 per cent of the total short term advances or Rs. 250 per member whichever is less. Cooperative banks were also permitted to grant jewel loans to individuals not exceeding Rs 1000 per borrower but the aggregate of loans and advances of all types against individuals should not exceed 10 per cent of the banks' total time and demand liabilities.

Till the end of November 1975 as many as 12.5 lakh small and marginal farmers and agricultural/landless labourers were identified as eligible for benefits under the S.F.D.A. schemes. Of these 6.1 lakh were enrolled as members of cooperatives during the period July, 1975 to November 1975. Short term loans to the extent of 193 million were distributed to these members through cooperatives. In addition medium term and long term loans to the tune of Rs 84 million have been issued to them by cooperative banks since the inception of the scheme. The state cooperative banks ensured that not less than 20 per cent of the central cooperative bank's advances to primary credit societies were issued for financing small/economically weak farmers. Drawals on the credit limits in excess of the free portion (generally 60 to 70 per cent of the limit) were required to be matched by corresponding advances issued to societies for financing such farmers.

Under the public distribution system for supply of essential goods, the recognised primary agricultural credit societies, the F.S.S. and the LAMPS are to attend distribution work in the rural areas. These societies were made eligible for additional share capital contribution in excess of the normal limit of Rs 10,000. Involvement of the funds of central cooperative banks in financing these societies for this purpose has been agreed upon. It has been made a legitimate charge on their funds. To meet the growing

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working capital requirements of Urban consumer stores in this context, urban cooperative banks have been entrusted with this responsibility.

The principal areas in which cooperative banks are assisting in the implementation of 20 point economic programme are (i) assistance to the landless labourers and other weaker sections of the community who are being allotted land and house sites, (ii) assistance to those released from bonded labour for undertaking viable productive ventures, (iii) increased flow of credit to take care of credit gaps created by the moratorium on recovery of debt from landless labour, small farmers and artisans and progressive implementation of the programme of liquidation of rural indebtedness, (iv) support to programme for supply of essential commodities and (v) assistance to handloom weavers.

TABLE I
Progress of Cooperative Credit Movement in India

(Amount in Rupees Crores)

Types of Institution	Cooperative Year		
	1972-73	1973-74	1974-75
Central Cooperative Banks			
(1) No.	349	341	391
(2) Owned Fund	254	281	314
(3) Deposit	647	719	812
(4) Working Capital	1412	1595	1838
(5) Loans issued	1246	1246	1520
Primary Agriculture Credit Societies			
(1) No (in thousands)	155	154	153
(2) Membership (in thousands)	33528	34956	35851
(3) Owned Funds	323	353	391
(4) Deposits	84	89	97
(5) Working Capital	1265	1360	1523
(6) Loan issued	776	762	889

Task Ahead

A lot has been achieved, yet much remains to be accomplished by the cooperative banking movement. Large credit gaps still persist in our agricultural economy leaving the productive needs of a large section of our population starving. Fields still stand unlevelled, unreclaimed and eroded. Vast tracts of land still have no irrigation facilities Old and outdated agricultural tools have not still yielded place to modern and improved implements Improved methods of cultivation and application of optimum dose of inputs have still to be adopted by a sizeable group in the country side. Modern agricultural machinery is still rare.

A large section of our population, particularly the weaker sections have not joined the movement yet A majority of those who have joined, are not availing of any facility from the cooperative credit organisations Of those who have dealings, majority do not make use of various facilities adequately. Though many formalities to make them viable have been observed, the real strength and vitality have yet not come. Their operations are still lopsided and the so called good of diversification of services is far from realisation. The basic function of resource mobilisation is not up to the mark resulting in chronic dependence over external sources. The genuine orientation of lending operation to productive needs has still to be attained. Poor recovery and large overdues are still a great menance to the movement. Factional politics, officialdom and vested interests are hovering over the institutions making their management uncooperative and unbusiness like.

A remedy has to be found as there exists no alternative. The solution lies only in the human element associated with these organisations be they officials, or non-officials or employees. First and foremost necessity is to tone up the administration at official levels make it sincere, dedicated and honest to the purpose. They are to be imparted necessary skill and made responsive to the needs of the movement. Necessary sense of discipline is to be inculcated among them to make them really the friend, philosopher and guide of the movement. To rule and to interfere is none of their business. It should be made clear that they are to guide, control and to direct the activities of the institution.

Similarly, in case of non-officials a code of conduct should be evolved. A fool-proof system is to be developed to check misuse of power, position and the resources. Self guided flights, tours, persuance of political ends and other such decisions by them are to be curbed. This class as a whole should be aware that their role is to take only policy decisions and not interfere with the execution of the decisions which is the responsibility of executives Only men with the necessary background and expertise can run cooperative business. There should be full cooperation and close mutual check and counter check between the official wing and non-official wings. The class which needs utmost care is that of executives and employees working in the institution. As a matter of fact, the future of the institution depends to a large extent on the quality of staff at its service. If they are adequate, qualified, trained, efficient and responsive, the institution is bound to grow and prosper. This will not happen on its own unless there is a just and effective system of employees recruitment, selection, orientation, placement, training, promotion, compensation. incentives, working conditions, service conditions, and welfare activities and amenities This doubly holds good in case of few key executives. This three sided approach to the human element accompanied with time-bound, need-based and closely supervised action plan may prove a panacea for the movement. □

THERE CAN BE

NO DEMOCRACY

WITHOUT DISCIPLINE

P. P. Dichloro Diphenyl Trichloro-Ethane, or DDT as it is commonly known was discovered by Prof. Paul Muller in 1939, when the era of synthetic pesticides began. DDT was introduced in India in 1947-48, and actual production commenced in 1956 Since then, its use is steadily increasing and 4200 tonnes of DDT was consumed in 1975. In comparison to other pesticides, DDT is effective, cheap and remains active for long periods of time both in inorganic and biological environment. Its excessive use poses health hazards not only to livestock but even to humans. However, its plus points are more than the minus ones and one cannot discard it entirely. The author discusses these in detail in this article on,

HEALTH HAZARDS OF DDT

R.C. GUPTA

IN THESE DAYS of intensive agricultural practices, pesticides are invaluable in the promotion of farm productivity and protection of agricultural products during storage, besides their use in the control of certain waterborne diseases such as malaria, typhus, yellow fever, etc. To avoid the annual damage to agriculture by insects, noxious weeds and rodents, estimated at Rs 5,0000 million, in our country, the use of pesticides is steadily increasing both in tonnage and in variety The excessive, use of pesticides however is posing health hazards not only to livestock and wild life, but even to human beings, either directly or indirectly through the food chains. Besides, pesticides could have other damaging consequences such as adverse effects on soil fertility and phytotoxicity They can also interfere with desired use of soil and water, causing major problems of pollution However, serious incidents as a result of pesticide use are yet to happen in India and the total ban on the use of DDT in countries like America and Canada is a warning to others. It is, therefore, imperative that the problems arising out of the increased use of pesticides, particularly DDT, in this country are throughly studied to avert an ecological catastrophe.

Exposure to DDT

During use, human beings are exposed to DDT at the time of production, formulations, packaging, transportation and application to vegetation. These occasions provides opportunity for contact, inhalation and even ingestion of toxic constitutes of DDT. In addition to occupational exposures entry into the food channels of man and his economic species may occur through residues in or on raw agricultural commodities or in processed or packed foods produced therefrom Thus traces of DDT may be ingested by the young and old, the sick and the healthy and for long or short periods at various stages or even through out life. This led to the monitoring of various food stuffs in the different parts of the country. The details of which are discussed below and summarized in Table 1.

Cereals, pulses and their products

A total of 314 samples collected from various sources such as farmers' houses, FCI Godowns and markets of Hyderabad, Delhi, Mysore etc. were analysed by different workers. Seventy four per cent samples were found to contain residues of DDT. A personal communication from Dr. K. Krishnamurthy of the Indian Grain Storage Institute, Hapur, revealed that mixing of DDT with the grains is a common practice in villages around Hapur and Delhi.

Operation of gas liquid Chromatograph for analysis of DDT in our food stuff.

Shri Gupta is a Scientist in the Industrial Toxicology Research Centre, Luckno.

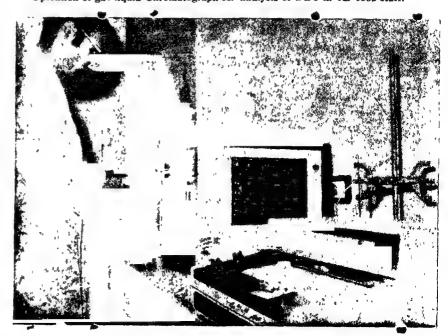



TABLE 1

DDT contamination of food samples

Commodity examined	No. of samples examined	No. of samples found contaminated	Residue level (ppm)
Wheat grains	219	182	0.05 — 6
Wheat flour	2	2	12 — 15
Cereals	77	34	Tr. — 0.8
Rice	4	4	9 — 16
Pulses	12	12	5 — 35
Oil seeds	15	15	1 1 — 41
Oils	14	8	5.0 — 25.7
Vegetables :			
Beans	6	6	0.4
Ladies finger	10	5	1.0
Brinjal	31	17	0.08 — 8.0
Cabbage	8	3	Traces
Potato	18	18	0.1 — 169
Tomato	20	5	0.05 — 0.08
Milk	5	4	0.003 — 0 005
Butter	5	2	0.4 — 0.5
Eggs	6	6	0 04 — 0 02
Fish	2	1	Traces
Fat of buffaloes, goat and cows	63	61	0.538

Oilseeds and Oils · Twenty nine samples of different oil seeds and oils from Delhi have been reported to contain DDT. The residues were very high in mustard oil, sesame oil and coconut oil while samples from Hyderabad did not contain any DDT

Vegetables · Out of 93 samples, as many as 54 samples (58 per cent) are reported to contain DDT which in a majority of cases was higher than the tolerance limit set by the Food and Drug Administration of U.S.A

Milk and Milk products . Out of 5 samples of milk from Pantnagar 4 contained DDT and analysis of two samples of butter also contain DDT below 0 5 ppm.

Eggs : Six samples of eggs collected from Pantnagar are reported to have contained DDT which was higher than the tolerance limits laid down by the authorities

Fish and Meat · Out of 65 samples of fish and fat from buffalo, goat and cows from Hyderabad and Pantnagar, 62 samples contained DDT

Storage of DDT in body tissues of man

On direct or indirect exposure of human beings, DDT tends to accumulate in their body fats. Studies have shown that the daily content of DDT in meal in our country might be about 0.2664 mg. while concentrations of DDT in body fact vary from 12.8 ppm to 31 ppm. This level of DDT in human fat is the highest in the world; the level of DDT in different countries of the world has been reported to contain 1.8 ppm to 19.2 ppm. (Table 2) The effects of higher concentration of DDT on man have been undesirable and alarming. Some disturbing effects could be related to cause many human and animal diseases like influenza, hepatitis, cardio-vascular derangements and even cancer, mutations and congenital *in utero* malformation. It is also believed that DDT may promote fungus infection, allergy, sinusitis, gastro-intestinal troubles, dehydration, malnutrition, pneumonities, and sometimes even to impotence and insanity.

TABLE 2

DDT in body fat of human beings in different countries

Country	Total DDT (ppm)	Per cent DDE in total DDT
Australia	1.8	56
West Germany	2.3	57
England	3.3	67
Denmark	3.3	82
Canada	4.9	67
Italy	5.0	64
France	5.2	67
Czechoslovakia	9.6	43
Hungary	12.4	48
Israel	19.2	56
India	12.8 — 31	37

Remedial Measures

Although DDT is a major long term contaminant of the total environment yet, when one puts the benefits and the risks of DDT in the balance, one finds the needle clearly pointing towards the wisdom of continuing the use of DDT in agriculture and public health programmes till a substitute of DDT is discovered. It is, therefore suggested that one should follow strictly the following safety measures:

1. DDT should be applied only in recommended dosages to crops when pest population has exceeded the economic threshold, i e, the level at which a significant crop loss may be expected if not controlled
2. Cattle should not be allowed to graze on the treated crops
3. The produce should be harvested after the waiting period is over.
4. Legislation should be passed to ban the mixing of DDT in food grains and farmers should be advised to use malathion and pyrethrum as food grain protectants in recommended dosage.
5. Consumers should be advised to peel, scrub or washed throughly with water all the vegetables and fruits before use, because such home processing of agricultural produce removes 80 to 90 per cent DDT residues. □

International Co-operation in Bio-Gas Technology

SUBHASH J. RELE

EXCEPT GIVING A fillip to the hotel business, seminars and workshops are not normally result-achieving. A week-long international workshop jointly sponsored by the United Nations Economic and Social Commission for Asia and the Pacific and the National Committe on Science and Technology on Biogas Technology and Utilisation was, however, an exception. The ESCAP needs to be complimented for its initiative in bringing this so-far-neglected subject on the international stage for the welfare of the poorer nations. Thanks to the oil crisis, the ESCAP countries have woken up to the new realities facing them and also given them an opportunity to develop their own resources. It was good to know that there is now no mystique about Bio-gas Technology in ESCAP region.

The objective of the Workshop was to develop an unconventional source of energy from renewable resources and to improve the value of organic waste materials for use as fertilisers. Besides India, the countries which participated in the workshop included Bangla Desh, Bhutan, Indonesia, Malaysia, Nepal, Pakistan, Fiji, Republic of Korea, the Philippines, Papua New Guinea, Thailand and Samoa. It is not encouraging to note that the governments in ESCAP countries are now convinced of the vast potentialities of bio-gas as an important source of fuel and organic manure. Some months back a preparatory mission of the ESCAP had visited a few selected countries of the region, and its report foresaw a great future for the development of Bio-gas plants in the region

Often, subjects like bio-gas do not receive the attention they deserve as do the sophisticated technologies Our ivory tower planners disdain the Bio-gas Technology as a reversion to the primitive methods of obtaining energy. They do not agree with the view that the bio-gas plant is an example of making a little go a long way; of finding multiple uses for a material found all over India. While inaugurating the workshop, Mrs. Indira Gandhi stressed the need for the evolution of intermediate technology approach to the special condition in the countries of the ESCAP region.

Shri Rele is a free-lance writer

The participants discussed the various technological, economic and social problems of bio-gas programme The bio-gas plant has several advantages. It can operate successfully on a small scale with a gas output as low a 2 cubic metres per day. This again is a subject on which further work has to be done Participants, however, were agreed on this The operation of these plants will not only help solve the increasing unemployment problem in ESCAP countries, but will also generate sufficient power and energy. Several novel ideas were thrown up. The main thrust of the proposal was the formulation of a national programme by each country of the region with the involvement of local government institutions as also the statutory bodies. There was a consensus among the participants on the need for an integrated programme for bio-gas system on the development of fuel, fertiliser and food There was no hair-splitting here. The participants who came out in favour of intermediate technology to solve some of the burning problems of the ESCAP region were expressing a point of view that is now shared by a number of countries and people. Belatedly though, they realised the danger accruing from attaching too much importance to urban-oriented sophisticated technology. Again countries can learn a lot from one another. In fact, the general tone reflected a pragmatic approach There was, of course, nothing original in the plea for preparation of training manuals for planning, design, construction, operation and maintenance procedures But the plea is not less relevant for the matter. The workshop suggested a planned approach for setting up bio-gas plants in the country of the region. In view of the significant role which bio-gas technology can play in rural development, the workshop propo ed provision of adequate faciliti for fabrication, construction, desig and operation of bio-gas plan elying on local materials. This tech nology can serve as a spring-boar for hastening the pace of rural deve lopment. The workshop called fo adequate financial assistance an incentives to the programmes. Th conviction is growing that interna tional cooperation for specific acti vities like training, research, ex change of equipment, etc. could worl wonders.

Plenty of waste that can be Converte into Energry

It is now admitted that the tre mendous resources of vegetable an organic wastes in our country an the world over could make avail able a huge amount of energy t meet the farmers' needs in the coun tries of Asia and the Pacific region Implementing a wide-ranging bio gas programme is a propositio calling for different kind of involve ment motivation. There is no reaso to believe that the ESCAP regio lacks in this.

As far as India is concerned, fourteen-year long efforts by the Khadi & Village Industries Commission have resulted in a "rich harvest" of bio-gas plants all over the country and to-date over 15,000 such plants have already been constructed The Fifth Five-Year Plan envisages the installation of about 1 lakh such plants As the energy crisis is unlikely to ease in the foreseeable future, the need for setting up more plants than the envisaged ones is very urgent. The excuse of financial stringency cannot stand any more. The commercial banks have shown enough initiative in financing the plants. The Union Government is giving 25 per cent of the cost of setting up a plant as a subsidy. There is no reason why this cannot be doubled. At present, attention is being focussed on how to maintain the level of gas production during the cold weather especially in northern India. So also is the question of raising the productivity of gas manufacture in a given time so that the size of the plant and its cost could be reduced. The KVIC, meanwhile, perfected the techniques of utilizing the slurry for compost making and using the gas for running an engine. It is the most cheering news that the KVIC is going in

(*Contd. on Page* 34)

REGIONAL REPORT

Young Entrepreneur's Feat

RAMAN PATEL

Ahmedabad Correspondent

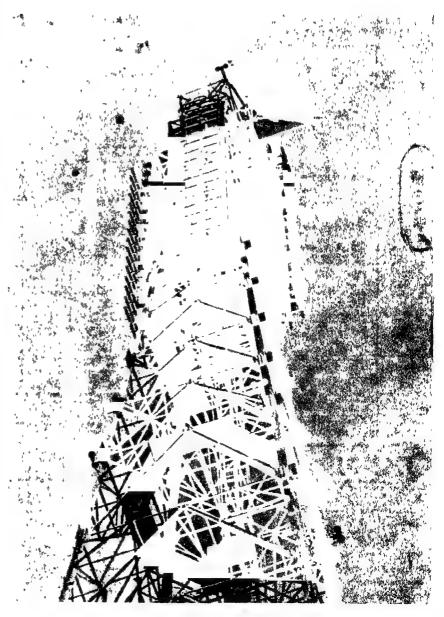
HOW A YOUNG mechanical engineer, with perseverance and determination, can push his way forward and contribute his mite in the nation building effort is illustrated, in the person of Shri Sham Antoorkar. Antoorkar has developed, designed and fabricated two types of antennae, one for the TV transmitter and another Parabolic dish type antenna, for the use of the Indian Space Research Organisation (ISRO). It is perhaps for the first time that such antennae have been made in this country. Prior to this successful effort, we were importing such types of antennae.

Antennae form a very vital part in the telecommunication system and have a wide range of applications in the Defence, Posts & Telecommunication, TV and AIR broadcasting etc. His antennae found ready acceptance by the ISRO when the country embarked on the SITE Programme. ISRO set up a TV transmitter at Pij near Nadiad for its experimental TV Programme. Antoorkar's antenna, which came in handy, fulfilled all the specifications and requirements stipulated by ISRO.

Antoorkar graduated as a Mechanical Engineer from Aurangabad (Marathawad University) and struggled hard for two years to make his own mark. He served with a small chemical engineering factory where he developed "metal coated oxide resistors" which have a longer life and better performance compared to the traditional resistors, which are used in the electronic industry. This drew him in the field of Electronics. He approached the Principal of M.G. Science College, Ahmedabad with a request to allow him to conduct his experiments. He was allowed to use the college laboratory and his products stood the tests, taken at the Physical Research Laboratory, Ahmedabad. Success in all these efforts, encouraged him to fabricate a transmitter antenna. The antenna system fabricated by him costs between Rs 2 and 3 lakh against the cost of the imported one which varies between Rs 5 and 8 lakh depending upon the variations in specifications. Antoorkar has also fabricated an antenna called the "Low Range Broadcasting System", which costs only about Rs 1 lakh, and is much cheaper than the TV transmitter antenna.

He has set up his own small manufacturing unit with the help of loan assistance from a nationalisd bank.

He has also designed and fabricated successfully what is called the "Computer Stationary Manufacturing Machine" with a production capacity of 100 ft. of perforated paper per minute. The machine can produce perforated paper, required for computers, in desired sizes and shapes. □

A parabolic dish type antenna built for the first time in country

Alphabetic literacy is important for the citizen, society and the Nation's progress. Independent of this form of literacy, science literacy however aims at achieving a certain level of science knowledge in the citizen. Today science confronts the citizen on many related public issues such as health, energy, food, agriculture, natural resources, outer space, communication, environment, transportation etc. Science literacy should make citizens not only conscious of these issues but also help them apply science more effectively in day-to-day life and avoid its pit-falls says

Dr. ZAKA IMAM

SCIENCE LITERACY

A Solution to our Many Problems

IT IS ESTIMATED that close to a billion people in the world today live in deep poverty with no access to scientific knowledge on such basic issues as health, nutrition and modern agriculture which could ease their sufferings considerably. There are no two opinions that knowledge is good But in the world of today when science affects almost every aspect of our lives, there are people who have low to practically zero level understanding of the current developments in various fields of science

Science is the major organ of enquiry in human society for exploring into the nature It is however not needed to be merely directed to satisfy man's desire out of his curiosity to know the nature Instead, its objectives (perhaps ever changing in demand) to name a few, are finding, a long term solution to man's problems of not only desired material gains in the form of food, shelter and clothing for all but also in achieving realization by all of the equality and dignity of all mankind, finding solution to confrontations in the world, preserving man's environment and finding out future resources as well as inhabitable places or possibility of inhabitating the outer space And, therefore, while emphasis on science to explore more and more of the vast potentials of the world (universe can be the limit) continues, man in the street needs to be adequately informed about the achievements of science and future impact of science on the society. This is important because the society is not only constituted of scientists, in fact majority is that of non-scientists. And of course for many other reasons too such as (i) to make best use of the scientific knowledge by the society, (ii) to involve public in debate on science related public issues and science policy and (iii) to make public know how good public fund that goes in scientific research is put to An understanding of science in the public mind, therefore, so as to make it understand the application of science in the best possible way and to gain an approach and develop a scientific insight to participate in science related public issues in the rational way and to avoid pitfalls of science is the aim of what we can call the science literacy.

Science Literacy

This is independent of alphabetic literacy because it can be achieved through ordinary language science (popular science) using media like radio, television, documentary film on science and photographic exhibitions. For literate people, however, science writings in ordinary language are an additional means of achieving science literacy Science literacy can be of a varied nature from knowing how to put together a nutritious meal to knowing how to enjoy the laws of physics

The Gap

At the root of many of our problems are socio-economic inequities which are further aggravated by an another type of gap, "the science information gap." Scientific research and development is one thing and its application by the society for whom of course science is meant, is the other thing. The interactions between science and the society ar[e] best possible by filling this informa[-]tion gap by the use of ordinary lan[-]guage science aimed at setting up [a] standard of science literacy. Scienc[e] with no access to knowledge gaine[d] through science, to the public mee[ts] a dead end. That is, if there exis[ts] a gap between scientific achieve[-]ments and the public knowledge t[o] grasp the applications in the righ[t] way, we can expect many odd re[-]sults. One such example to quote i[s] from a family planning doctor wh[o] was once visited by one of he[r] patients complaining that she (th[e] patient) had conceived despite us[-]ing the method advised by her (th[e] doctor). The doctor, naturally asked the lady if she ever misse[d] the devise The lady confessed tha[t] she used it always the way docto[r] had explained, "I pulled the condo[m] on the thumb of my husband ever[y] time before intercourse." Imagin[e] there are people around so ignoran[t] of the very basic biological fac[t] that pulling condom on thumb woul[d] not prevent of conception. Perhap[s] the lady thought that condom coul[d] work like magic. Science is no mag[ic] but phenomena based on the fac[ts] of nature. The very common sens[e] which people apply elsewhere fail t[o] apply where it concerns science. O[r] conversely people fail in applyin[g] science where science could hel[p] solve their problems Like othe[r] countries, specially under develop[-]ed and developing countries, w[e] have social and religious taboo[s] customs and prejudices which ar[e] not only irrelevant but scientificall[y] absurd Science literacy can def[i]nitely help root out such road block[s] in the passage of the country' progress.

The Problems

Present day confronts citizens wit[h] many science related public issue

such as health, energy, food, agriculture natural resources, outer space, communication, the environment transportation etc. Science literacy, therefore, can make a citizen not only conscious of these issues but also make them capable of drawing common sense Judgements to apply science effectively. Use of modern appliances and techniques in agriculture all need some level of science literacy.

Under nourishment or over nourishment (two forms of malnutrition) can be found in human populations the world over, the first being, however, predominantly a problem of the underdeveloped countries Malnutrition diseases, such as kwashiorkor and marasmus, are now known to be not mere consequence of protein deficient diet but also related to mother's less efficiency and stupidity. Educating mothers in hygiene, nutrition and child care can solve these problems directly and at a much faster speed than by launching programmes to feed the under nourished Of course supplementing diet by providing milk and soya products will also prove effective. Though socio-economic inequities are at the root of many such problems, the popular science covering topics on major issues such as health, food and agriculture, by way of achieving the required level of the science literacy, can offer atleast a partial antidote. Acquisition of knowledge, that prerequisite to good health, is a properly balanced (nutritive) diet, can lead to considerable achievement in solving the problem of malnutrition. For example, children and adults alike can be made to learn the benefits of taking seasonal fruits and other nutritive food instead of *chaat* which can spoil one's appetite (it is an observable fact that often bad food habits and intake of low dietary food is not related to one's poor economic status but to negligence of dietatics). Knowledge that so called refreshing cold drinks have poor nutritive value can put one to the best use of his money by going for sugar cane or fruit juice. Infectious diseases in a community can also be avoided by the use of science literacy. Besides these, every couple can best understand its role in the population balance of the country and get rid of inhibitions and prejudices and take up family planning, if they reach a certain level of science literacy. The family planning would then come natural to masses. That likewise illiterate, literate also needs to be informed through popular science, is evident from the growing menace of modern mothers not breast feeding their infants. This is due to the ignorance of the factual scientific information that the nature's best comes in the mother's milk. And conversely also attracted or misguided by the advertising practices of manufacturers of infant formulas and weaning foods, and partly for fashion, the mothers deprive their near and dear of this boon. Admixed with misconceptions and prejudices it is customary knowledge among such mothers that breast feeding destroys one's figure, though breast feeding does not Instead it provides antiinfective nutritional food very much needed for the development of human central nervous system There is an old wives tale that breast feeding has a contraceptive child spacing effect and this effect has been proved to be scientifically correct

Science Literacy—Three Forms

Prof. Benjamin S.P. Shen of the University of Pennsylvania has distinguished science literacy into three forms: 'Practical', 'Civic' and 'Cultural science literacy'. According to him all these three forms of science literacy besides their difference in objectives also differ in audience, content, format and means of delivery. Among the various forms, according to Benjamin, practical science literacy is one of utmost importance because it aims at directly influencing the living standard of masses because a little of scientific information can mean difference between health and disease, life and death. The use of communication satellite ATS-6 in India, to deliver health and agricultural information to villages in some states, is cited by him as the example of the efforts to achieve this sort of science literacy In his words: "The aim of the civic science literacy is to enable the citizen to become more and more aware of science and science related issues so that he and his representatives can bring their common sense to bear upon them and, in this way participate more fully in the democratic processes of an increasingly technological society". Dr Benjamin also points out that general hesitation in the face of scientific issues stems mainly from lack of familiarity with them and science in general. The cultural science literacy, though of no direct use, develops out of one's curiosity to know science. It is like science student reading literature, learning music or enjoying poetry. But, the cultural science literacy does not extend beyond intellectual community.

Popularisers Needed

To achieve science literacy there is need for skilled popularisers, who can make scientific subtleties clear to the layman with the help of writings and audiovisual media Fresh graduates in science with aptitude for this vocation may be encouraged to take carrier in science writing or preparation of material on science for the mass media by granting them fellowships The fellowships could be given by scientific institutions, Education Ministry and Ministry of Information and Broadcasting. Scientists engaged in active research, can do equally well by considering their important role in increasing science literacy standards of masses as their social responsibility. They can participate equally and of course very effectively (i) with mass media in preparing material on sicence, (ii) by publishing their wiritings of popular nature on the subjects of their interest and (iii) by helping organise scientific exhibitions seminars etc. for the public. The importance of mass media to put the things in right perspective is immense. Newspapers need to evolve policies to give not only enough coverage to scientific events--necessarily not to be of the order of breakthrough in science or sensational science news but even those of general utility. Some leading dailies can very well afford to have a regular feature or column on scientific topics of interest to public In the recent past there has grown an increased interest in popularisation of science. And we can find that today newspapers are giving a little more place to scientific squabbles, though of course not yet satisfactory, seeing the role of science in nation building There are a few popular science magazines in our country which find popularity generally among science students and layman intelligentsia with considerable background in science. The popular science magazines however, separate science from the daily life. I, therefore, believe that mass media has much responsibility in popularising science a daily likewise radio and TV programmes along with current events of all nature, can place science as an event of every day life. Popular science is however needed not only in the under developed and developing countries but also in developed countries which too lack an adequate level of science literacy among masses.

A few scientists who communicate science to laymen are often looked down by their fellow scientists. This attitude is worth condemnation and must change. Instead, all scientists should take part in popularising science. A much closer interaction and cooperation between scientists and science journalists should be soughts. □

Towards Modernisation

Modernisation of Working Women in Developing Societies *by Dr. Raj Mohan Sethi; National Publishing House, New Delhi,* 1976; *Pages* VII 168; *Price Rs.* 35.

COMPARATIVE SOCIAL research on the conditions of women in different countries has been hitherto the specialised field of international agencies because this expensive undertaking is most generally beyond the resources of our domestic institutions Hence, we have so far been on the receiving side and not the givers of homilies to others based on our perception of conditions abroad Besides, we have become more pragmatic rather than politically-oriented in this respect in recent decades

That the author has, for the first time, attempted a systematic analysis of the position of women in two modernizing societies viz India and Turkey is no mean achievement However, the choice of Chandigarh and Ankara, Turkey for the above purpose confines the analysis of the cognitive structure to the urbanised, the educated and employed women of these two cities, the one characterised by its recent emergence as the metropolis of post-partition Punjab and the other of over four decades of established supremacy as the Centre of women's emancipation amongst surrounding Islamic societies The casual circumstances leading to the attitudinal changes towards modernity in the two countries are also historically divergent and diachronic. The exposure to English education of Indian women over its cultural base anchored on Hinduism and Islam and its resultants are of far greater impact elsewhere in India than in Chandigarh, if properly viewed.

A well-written introduction elaborating the basis of modernization and westernization in theoretical terms conducts the reader to the research design that is usually neglected in similar endeavours of doctoral dissertions. The treatment, however, is somewhat over-emphasised as though the aim of the author is to postulate the scientific validity of the conclusions and results of the research project. In regard to the study the primary interest in going through it lies in grasping her nimble and suave handling of statistical methodology with the presentation of the empirical results with more than the usual candour and confidence displayed in similar efforts.

The weakest point in the book is

Books

evidently the large number of generalisations based on inadequate sociological empiricism underlying it, particularly in the author's choice of the indices of modernity and the construction of schedules thereon. Much the same could be stated about the reliance placed on coefficients of correlation based on index items for both Indian and Turkish women in as much as these appear to the present reviewer as being too tenuous to throw light on the settled attitudes and behaviour posited on modernization in depth Let us admit that most of these transcend the criteria of the choice of indices adopted by the author The economic considerations promoting attitudes of a modernity among working women, the environmental impact of the cities on them alongside Western influences of the desirable and undesirable kind etc., also remain to be included in the analysis more thoroughly. These cannot be taken for granted particularly in the Indian situation.

The questionable aspect of the 'systemic approach' about whi[ch] the author speaks of in the soc[io-]psychological context is the mann[er] in which cultural differences ha[ve] been discussed and their axiolo[gi]cal features skeletized for the pu[r]pose of the analysis. In this respe[ct] the author appears to have rath[er] liberally subscribed to the writin[gs] of several scholars abroad who[se] knowledge of the two societies or f[or] that matter, the values implicit [in] traditional society and their cu[l]tures does not appear to be ve[ry] deep. While some of our ow[n] scholars have eagerly supplied t[he] reasoning for lending support [to] the theories of modernization an[d] westernization, these do not eith[er] legitimate them or confer the stam[p] of finality to their erudite view[s].

If we overlook this gullible aspe[ct] that has permeated the choice [of] assumptions and methodology, t[he] present work must be classed [a] pioneer in the field of comparati[ve] social research through a readab[le] book whose anchorage on trad[iti]aional as tending to highlight t[he] aspiration levels based on perceive[d] changes covering a small and i[n]adequate sample, orientations derive[d] from too brief period of stay i[n] Turkey, with markedly less succes[s]ful appreciation of the social re[a]lities implicit in the Turkish la[n]guage and culture, as to enable her t[o] draw tenable comparisons wi[th] Hindu and Sikh women of Chand[i]garh Both are happily tradition[al] and modern in alternating sequenc[e] depending on their economic i[n]dependence or the afluence of the[ir] husbands Let us hope that it is th[e] rediscovery of the modernity [of] abiding traditional values that wi[ll] preoccupy the author in any re[vi]vision of the book that he migh[t] contemplate after deeper and sub[s]tantial study.

The book has been very well pro[]duced, moderately priced and give[s] also a set of useful references, biblio[]graphy and index.

—B.N. Na[]

BOOKS RECEIVED

1 **Functioning of the L.I.C.** *An appraisal by B.S.R Rao, Institute for Financial Management and Research, Madras. Price Rs* 45.

2. **India and International Monetary Management** *by S.K. Taneja, Sterling Publishers Pvt. Ltd, New Delhi. Price Rs* 75.

3. **Role of Irrigation in the Development of India's Agriculture, Seminar Series.** *The Indian Society of Agricultural Economic Bombay. Price Rs* 30.

THE MARCH OF MAHARASHTRA

Nehru Birth Anniversary Souvenir, *14th November, 1976; Maharashtra Pradesh Congress Committee, Bombay.*

THE MAHARASHTRA Pradesh Congress Committee has issued, for the first time, this souvenir on the birth anniversary of Jawaharlal Nehru, with the object of presenting various view points on the numerous topics which are of interest to the citizens, particularly of Maharashtra.

People's education in current affairs has indeed assumed greater significance in the context of the national emergency and the subsequent developments These developments together with the world energy crisis and international inflation have brought about a radical change in our political and economic situation And the primary responsibility for people's education lies on the shoulders of the leaders of public opinion, particularly those of the ruling party It is therefore only appropriate that the MPCC should have taken a lead in this direction

Moreover, Maharashtra can legitimately claim credit for many poineering socio-economic reforms The employment guarantee scheme; district level planning, family planning legislation, cotton monopoly purchases, tribal sub-plan are some examples. The Souvenir contains articles on these and similar topics by knowledgeable persons These programmes have significance stretching across the boundaries of the State and outsiders will find this Souvenir an authentic source of relevant information

It would be unfair to apply to a publication of this kind rigorous standards of critical review. However, one still feels that with a little more advance planning the object of the Souvenir could have been achieved in a far greater measure The text of speech of the Chief Minister of the State reproduced in the Souvenir was apparently delivered on an occasion which has very little relevance in this context. There are a few contributions e.g. on world turmoil, role of motivation; etc. which are rather esoteric and might as well have been left out

There should have been also more material to justify the title, "March of Maharashtra". For instance, the article on Maharashtra's agriculture is a good analysis of the past experience and the future prospects in this field. But one searches in vain for similar treatment of other sectors, particularly industry. Maharashtra enjoys a popular image of a highly advanced State. But if the industrial concentration in the Bombay-Poona-Nasik triangle is left out the State is as backward as any other State in the country. The State is predominantly agricultural and the great amount of uncertainty associated with this major occupation makes the life of the people in the State extremely vulnerable Only about 10 per cent of the area of the State is under irrigation as against 75 per cent in Punjab, 45 per cent in Tamil Nadu and Haryana and 23 per cent in the country as a whole. Only another 10 per cent has an assured adequate rainfall and another 40 per cent has assured but comparatively less rainfall. The remaining 40 per cent has very scanty rainfall. This extreme dependence on rain explains the great fluctuation in agricultural output and subsequently the economic fortunes of the people of the State. Thus foodgrains production in Maharashtra was more than 77 lakh tonnes in 1961. It dipped as low as 30 lakh tonnes in 1972-73 and attained the peak of 91 lakh tonnes in 1975-76. The March of Maharashtra is thus not all that straight and steady.

The Souvenir could have brought out the real challenges and opportunities in sharper focus Even so, it does serve to reassure the readers that the State is on the right path and given determination on the part of the administration and people's cooperation, it is possible to achieve significant results for the amelioration of the lot of the poor and the underprivileged

—M.R. Kulkarni

Integrated Rural Development

Contd from Page 14

sometime before this new venture yields concrete results and on a sufficiently national scale. Meanwhile, as the Prime Minister has pointed out in the case of gobar gas plants, the remedy may prove worse than the disease by depriving the poor of their inexpensive asset without giving them a reasonable share in the energy and fertiliser products of such plants. I am all for using science and technology for dealing with rural development and solving the problem of rural poverty But it should not be treated as a substitute for not dealing with the basic problems of the viability of the village unit, the more equitable distribution of productive assets among rural households, the greater access on the part of the poor to the inputs and other facilities afforded by government for their benefit, the democratisation of the rural power structure, and the creation of the necessary consciousness and organisation among the rural poor for ensuring their effective participation in, and influencing of the rural developmental process □

Cooperation in Bio-Gas Technology

Contd. from Page 27.

for integrated bio-gas projects for the type in use in the Pacific countries like Philippines. In no other field there is greater need for exchange of ideas and information than in this.

Bio-gas programme is poised for a big leap. International co-operation will definitely help to give it a boost. Technologists are now busy working on designs suitable for different climatic regions. This must be so in other countries also. Dr. S.R. Barooh, the Fertiliser Commissioner, however, feels that there is scope for setting up 6 million plants at the rate of 10 plants in each of the six lakh villages. Judged by the results and the potential in terms of 220 million tonnes of cattle dung during a year, which is currently used as fuel, it should be conceded that the pitch of the effort has not been high enough. The main drawback is the absence of a clear-cut focus in the policy on bio-gas plants. □

Development Notes

Irrigation Scheme in Raisen District

The State Agriculture Department has finalised a Rs 7 million scheme with the assistance of the Agriculture Refinance Corporation for developing irrigation facilities in 475 villages of the Raisen and Gairatganj tehsils in the Raisen district of Madhya Pradesh The scheme when completed would provide irrigation to an additional 1 9 lakh hectares of land

The scheme includes construction of 400 new wells, installation of 700 electric and 200 diesel pumpsets and repair of 600 wells

A similar scheme was launched last year in the Gairatganj, Begumganj and Silwani tehsils of the district with a total provision of Rs 11 1 million to provide irrigation to an additional area of 1 39 lakh hectares.

Central Board for Malaria Control

A high-powered Board, with the Union Health Secretary as Chairman, has been set up to ensure the speedy and effective implementation of malaria control programme, particularly the revised strategy

The Board will look after procurement, supplies and evaluation, review and coordinate research and training activities, exercise all financial powers and set as a clearing house for projects in the field of malaria control All experimental and innovative schemes likely to help fight malaria and costing more than Rs. 5 lakh are to be referred to the Board for scrutiny and approval. Schemes costing less than R 5 lakh may, however, be sanctioned by the Secretary

With the setting up of the Board and the adoption of the modified plan of operation, the anti-malaria drive gets a new result-oriented thrust, whereby Central assistance to the States will be linked to the performance of the States concerned

State Governments have been asked to make arrangements for the proper enforcement of the new plan, which will be assessed by independent appraisal teams.

Gobar Gas at Reduced Cost

A significant breakthrough in cost reduction of constructing a Gobar gas plant has been achieved, by the M P Agro-Industries Corporation The Corporation has succeeded in designing a cheaper gas collector Made of cinder and cement, this collector has the same weight as the steel drum and costs only Rs 250 for a 100 cft unit The steel gas collector costs Rs. 1,200 Besides, the new collector can be manufactured at the site of the installation by a semi-skilled village mason, obviating cumbersome transportation and bottlenecks in its manufacture on a large scale It also obviates the need for any special water tank for curing as the water will be filled in the upturn cement and cinder container itself.

A proto-type improved Gobar gas plant has been functioning successfully at Tikamgarh in Madhya Pradesh for sometime The Agro-Industries Corporation which has so far installed over thousand Gobar gas plants in last one year, is set to construct 15,000 more units in the State by the end of 1978

Electronic Calculators by Small Units

About 50 per cent of the total capacity of 1,83,000 created in the country for the production of electronic calculators has been assigned to the small-scale sector. More than 65 per cent of the capacity in the small-scale sector has gone into production and other units are at various stages of implementation

The production of electronic calculators in the small-scale sector which started with 6,000 nos in 1971, made remarkable progress during 1975, contributing about 55 per cent of the total production of electronic calculators in the country during that year The production envisaged during 1975 would be more than double of last year's production. These units are producing a wide range of calculators with and without memories, pocket calculators, etc.

Rise in Hosiery Exports

The woollen hosiery industry in India exported goods of a total value of Rs 231 2 million in 1975-76, as compared to only Rs 1 2 million in 1961-62. If the present rate is maintained, the industry's export value would touch Rs 500 million by 1980-81

India's total wool and woollen exports today account for some two per cent of the total national exports annually Out of the total wool exports, the hosiery exports account for a little less than one-third In Punjab, almost 70 per cent of the hosiery industry is engaged in export production and it accounts for nearly 40 per cent of the exports from this State. The investment-export value ratio of approximately 1 7 shows the personal contribution and hard work of the entrepreneurs

Bulk of our hosiery exports go to the East European countries pre-dominantly the U S S R and Czechoslovakia. Recently our hosiery goods have also found entry into the Middle East and Gulf countries, African countries and also to the U.S.A. and West Europe.

Gauhati Refinery Capacity Being Increased

The refining capacity of the Gauhati Refinery is being increased from the present design capacity of 0 75 million tonnes to 1 million tonnes per annum in the near future An additional investment of Rs. 4 to 5 crores would be necessary for this From a design capacity of 0 75 tonnes per annum, the throughput had steadily increased to 0.827 million tonnes last year and this year the target was set at 0 84 million tonnes According to indications, the target was being achieved by way of better capacity utilization.

Crude distillation unit processed all time record throughput of 0.827 million tonnes and the kerosene unit also achieved an all-time record throughput of 1,26,630 tonnes during the year The coking unit operated for 330½ days during the year which was the maximum number of operating days since commissioning of the refinery. It processed 3,41,352 tonnes of reduced crude The production and distribution of liquefied petroleum gas (Indane) were 3,102 and 3,031 tonnes, respectively, which was also an all-time record the refinery achieved so far.

Work on Mirzapur Thermal Power Station Begins

Work has started on the construction of India's first 2,000-mw capacity super-thermal power-station in a remote area of the vast Mirzapur district of Uttar Pradesh

The plant will be very close to the Jayant mines of the Singrauli collieries now under construction in M P three kilometres from the UP border. The new mine will meet the entire fuel requirements of the powerhouse A central sector project, the plant will be installed and operated by the National Thermal Power Corporation for supplying power to the proposed national grid connecting all states The Corporation has yet to take charge of the site. In the meantime, preliminary work under way at the site is being supervised by the electricity and irrigation departments of the UP Government.

Central Aid to States for Irrigation

The Centre has agreed to give the States Rs. 48.10 crore as advance Plan assistance in 1976-77 for accelerating work on major and 16 medium irrigation projects in 14 States during the current annual Plan period During 1976-77, an outlay of Rs. 606 crores was originally agreed to by the State governments in their Annual Plans for irrigation work purposes. As a result of a review conducted recently, an additional outlay of Rs 75 20 crores has been suggested by the Planning Commission for speeding up work on 40 projects during the year. While the Centre has agreed to give Rs 48 10 crores, as advance Plan assistance, the concerned State governments have been asked to meet the remaining Rs 27.10 crores from their own resources.

Under the 20 point programme, an additional irrigation of 5 million hectares is to be created in the last four years of the Fifth Plan period from the major and medium irrigation projects.

Upper Wainganga Project

Work is in full swing on the Rs 370 million upper Wainganga project in the Seoni district of Madhya Pradesh which, when completed, will irrigate more than 113,000 hectares of land – about 66,000 hectares in the Seoni district and about 35,000 hectares in the Balaghat district. Excavation for the main dam and three main canals has already started.

The construction of 21 km. approach road and 140 buildings at the construction site to house the offices and staff has already been completed and work was in progress to complete Chhapara and Samnapur residential colonies near the main dam.

It may be mentioned that a reduction of Rupees 70 million in the cost of this dam had been effected and its capacity for irrigation increased by 40,000 hectares by changing the site to higher level and by raising the height of the dam by ten feet.

The area brought under irrigation as a result of this project will yield an additional production of 1.67 lakh tonnes of foodgrains, 1,960 tonnes of sugarcane and 1 86 lakh tonnes of good quality fodder besides providing a large water- spread for pisciculture.

Conversion of Rust into Protective Coating

The Central Electrochemical Research Institute (CECRI), Karaikudi, has developed a coating composition which converts the rust formed on mild steel surface into a black, hard protective coating. The surface so converted acts as a good base for applying paints and helps increase paint life.

At present, such a protective measure is not adopted in the country but if the CECRI process is widely adopted in the country, a demand of the order of 200 tonnes per annum for the rust converting composition is likely to be generated. All the raw materials required for the preparation of the rust converter are indigenously available

New Zinc Units to be Commissioned Soon

The expansion of the Zinc Smelter Project at Debari near Udaipur will be commissioned soon. The roaster a key plant has already been fired and the feeding of concentrates is likely to commence shortly When the expanded smelter goes into production the capacity of the Debari Unit of Hindustan Zinc Limited will be more than doubled from 18,000 tonnes to 45,000 tonnes of zinc metal per annum.

The Visakhapatnam Zinc Smelter Project, with an installed capacity of 30,000 tonnes is also expected to be commissioned in the first quarter of this year These two plants together will add 57,000 tonnes to the total capacity of zinc production of the Hindustan Zinc Limited

EPI Commissions Its First Furnace

Engineering Projects (India) Limited completed its first furnace project on January 3, 1977 with the supply, erection and commissioning of three furnaces for the manufacture of gas cylinders at Bharat Pumps and Compressors Ltd , Naini, Allahabad

EPI has entered into a long term collaboration agreement with DEMAG AG of West Germany to manufacture electric arc furnaces for steel making of capacities ranging from 30 to 300 tonnes and electric reduction furnaces for the manufacture of pig iron, ferro alloys, calcium carbide, non-ferrous metals etc. of capacities from 6 to 100 MVA

A similar long term technical collaboration agreement exists with STEIN SURFACE of France for reheating, heat treatment and special purpose furnaces for both ferrous and non-ferrous metals of capacity above 25 tonnes per hour. EPI has 5 contracts in hand for furnaces of all these types of total value of Rs 120 6 million.

Trombay V Expansion Project

An agreement has been reached between the Fertilizer Corporation of India and Snamprogetti S.p.A. of Italy covering engineering, supply of imported equipment and technical supervisory services for the construction of a 900-tonne per day Ammonia Plant and 1000 tonnes per day Urea Plant at Trombay. The Project, known as Trombay V, is a major expansion of the existing Trombay fertilizer factory complex near Bombay.

While the major portion of the ammonia produced will be utilized for manufacturing Urea in the new plant, a part of it will be used by some of the existing plants at Trombay and by the plants already under construction under Trombay IV Expansion Project.

Trombay V will use naphtha as feedstock in the initial stages and changeover to associated gas when it is available from the Bombay High operations.

While Snamprogetti will provide the basic engineering and technical supervision to the extent required, detailed engineering, project management and construction and other similar activities will be handled by FCI's Planning & Development Division and Trombay's Project Division.

Sunflower — A New Crop For Punjab

The sunflower crop has recently been introduced in the Punjab The best time for sowing this crop in Punjab is from the last week of January to the middle of February At this time it can be successfully grown in the lands vacated by potato, toria and cotton crops It gives an average yield of 5 to 6 quintals per acre.

Earlier the farmers experienced some difficulty in selling the produce Now Hindustan Levers Limited, Bombay in collaboration with the Punjab Agricultural University, Ludhiana have offered a guarantee price of 90 per cent of the groundnut rate prevailing in the market at the time of sale in May and June 1977 The sunflower growers are advised to enter into contract with the Firm by signing the specific form which is available with the Department of Plant Breeding, of the Punjab Agricultural University, Ludhiana This way they can ensure the sale of their sunflower crop

Electronic Regulator for Ceiling Fans

A small sector unit in Delhi has developed an improved electronic regulator for ceiling fans. It incorporates a solid state system which is smaller and lighter than the conventional regulator Because of the all solid-state design, the life of this regulator is semi-infinite Since no power is dissipated in the regulator itself, the regulator operates at room temperature resulting in further enhancement of its own life and the life of the bakelite board on which it is mounted.

The electronic sub-assembly inside the fan regulator is on a paper PC board The entire system is housed in an elegant high-impact polystrene cabin The most significant feature of this item is the considerable overall saving of power It has been computed that, for a 100 watt fan, the total saving per season would be Rs 20 when the tariff is 25 Paise per unit The regulator is currently priced at Rs 55 plus local taxes

Vegetable Oils and Waxes from Indian Plants

Most of India's diverse plant resources go waste but recently some National Laboratories of the Council of Scientific & Industrial Research have developed processes to obtain vegetable oils and waxes from them The Regional Research Laboratory, Hyderabad has carried out expensive studies on processing of cottonseed to obtain oils and other chemicals The work has been done on pilot plant scale of 20 tonnes per day. The laboratory has also developed process for preparation of chemical cotton from cotton linters and production of cottonseed flour from cottonseed cake

In another experiment, the Hyderabad Laboratory, has developed a process for obtaining hydrogenated castor oil from castor seeds The product obtained compares well with the imported product.

The Hyderabad Laboratory has also developed an improved process for the manufacture of dehydrated castor oil for making white and pale coloured paints and enamels, particularly suited for refrigerators

In another experiment, the N.C.L has developed a process for improving the quality of gum ghatti, a natural product of Indian origin which is exported in a substantial amount.

The N.C.L has also found that wax and alcohols can be obtained from sugarcane press mud A suitable pilot plant for the extraction of waxes from the sugarcane press mud has been assembled.

SPOT REPORT
ON ABUJHMAD
ECONOMY AND
THE PLAN

Printed at Universal Advertisers E/2, Jhandewalan Extn, New Delhi-110055 and Published by the Director, Publications Division, Patiala House, New Delhi-110001.

YOJANA

Volume XXI Number 3
New Delhi
March 1, 1977
11 Chaitra 1898

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan, but is not restricted to expressing the official point of view.

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IN THIS ISSUE

Cover Photo B. Amar—*A folk dancer from Abhujmad*

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Subscription ; Annual—Rs. 18, Two years—Rs. 30. Three years—Rs. 42, Foreign Subscriptions : One year—£2.70 or $5.50. Two Years—£4.50 or $9.00. Three Years—£6.30 or 12.50 Single copy—eight pennies or $0.25.

EDITORIAL

Our Economic Performance

The din and dust that accompanies electioneering campaigns on the eve of poll is a periodical phenomenon in an open society. That ours is one such, nobody has doubted The passions and slogans raised on the occasion, though inevitable, do not provide a congenial atmosphere for an objective assessment of economic performance in the period preceding the poll. Even so, a mature electrorate are most unlikely to miss the point that whatever be the outcome of the contest, the last two years have been among the best that free India has seen.

1976 saw the injection of dynamism into India's economy, particularly in areas where it has felt the pinch for far too long—agriculture, industrial production and export performance. There has been a qualitative change in the economic outlook as a result, partly due to satisfactory rains but largely due to a determined effort on the part of the farmers, workers and management to infuse hard work and a degree of realism and self-control in the process of production. An excellent Kharif crop in 1975 followed by satisfactory harvests in 1976 have resulted in the storage of over 17 million tonnes of foodgrains for public distribution, providing a reliable cushion against a possibility of partial drought in the coming season This has largely contributed to the arrest of price inflation and the people have developed confidence in the public distribution system. Fertilizer production has risen and so has consumption with a reduction in its cost to the farmer The area under major and minor irrigation has increased by over 5 5 million hectares which in itself is no mean achievement The year also saw the birth of a new programme integrated rural development based on a detailed survey of local needs, resources and potentialities. Besides, special programmes for hill and tribal areas, backward classes and small farmers continue to make good progress There is clear evidence of acceleration in the rate of agricultural growth.

A noteworthy feature of the last two years in the economic history of India has been the spurt in industrial growth, with about 11 per cent during January-October 1976. Together with the performance in the small scale sector, the progress would be much higher. The Public Sector which had been the butt-end of criticism and ridicule showed the highest growth rate with 12 per cent Power generation, steel, cement, aluminium, fertilizers, Vanaspati, newsprint, baby food, agricultural machinery and commercial vehicles and diesel engines can be picked up as random examples of the spurt in growth rate. Consumer durables have also done very well and the general climate for industrial growth has never been so favourable as it is now. All this would not have been possible without the pragmatic policies adopted by the Union Government Between January-November alone power generation rose by an impressive 17 per cent

Besides, as a result of various administrative measures taken in 1975 and 1976, tax collections and savings have improved and circulation of black money has been vastly reduced.

In spite of the rising trends in prices of consumer articles in recent weeks, the price level of most of the commodities stands below the 1974 line Part of this rise is attributable to speculative tendencies in select consumer commodities like edible oils. Perhaps the most outstanding performance has been in the field of foreign trade. Our balance of payments position has never been so good as it is now, with reserves totalling about Rs. 22,460 million as on December 17, 1976.

The overall picture of satisfactory performance in the economy must be matched with Government efforts to improve the lot of the most deprived sections of our society—the scheduled castes and tribes and slum dwellers. There has been peace in the schools and colleges. Our cities are a bit cleaner and thousands of families have been given farm-land and building sites.

The Economy and the Plan

SANKAR GHOSE

Minister of State for Planning

THERE WAS a distinct and significant improvement in the economic situation in 1975-76 on account of the various measures taken in the wake of the emergency and the launching of the Twenty-Point Programme of the Prime Minister and the increase in agricultural and industrial production Though there has been some pressure on prices during the current year, yet considering the various economic indicators the overall economic situation is encouraging

Even though the weather conditions during this year have not been as favourable as in the last year, the kharif output would be around or only marginally lower than that of last year The prospects of rabi crop are bright Both as a result of the downward revisions in the prices of fertilizers and the measures taken to promote their use, the consumption of chemical fertilizers has picked up The fertilizer offtake in the kharif season increased by about 32 per cent The production of oilseeds and cotton during the current year may be somewhat lower than last year's level, but the production of sugarcane is likely to be higher and that of jute and mesta significantly higher With large stocks of foodgrains of around 17 million tonnes with the public agencies this can be viewed with some satisfaction

The growth in industrial production during the first six months of the current year April-September 1976 at 12.5 per cent compares favourably with the growth of a mere 3 per cent during the corresponding period of the previous year On present indications the industrial output on the whole may be higher by 9 to 10 per cent during 1976-77 than in the previous year The data relating to the output of selected industries for the first 4 months of 1976-77 indicates that sizeable increases in output occurred during this period in industries relating to nitrogenous and phosphatic fertilizers, cement, scooters, paper and paper board, newsprint, aluminium, industrial machinery, caustic soda, etc. Even a number of industries, specially cotton yarn and cotton cloth and passenger cars, which were subject to recessionary conditions in 1975 recorded significantly higher

As a result of planned development and various policy measures taken in the last two years, the Indian economy is now in a stronger position than ever before. There is today greater economic discipline and a new dynamism. A favourable climate has thus been created for resuming the process of planned growth with greater vigour and confidence

levels of output during this period The performance of public sector enterprises has also continued to be satisfactory.

The improvement in industrial production has been on account of a variety of factors On the whole, the power supply position has been better and the availability of strategic inputs like steel, coal, cement has been easier There has been a signifiacnt improvement in the industrial climate The man-days lost during January-June 1976 of 6 03 million was considerably lower than 17 10 million man-days lost in the corresponding period last year

The balance of payment position during the current year has been promising Exports during the first seven months at Rs. 2750 crores have been higher by about 33% than in the corresponding period last year. Imports on the other hand have been lower by about 10 per cent to Rs 2675 crores. There was thus a trade surplus of Rs. 75 crores against a large deficit of about Rs 916 crores in the same period in 1975-76 The foreign exchange reserves have shown a further improvement and reached the level of Rs. 2450 crores by the end of November 1976 as against Rs. 1885 crores at the end of March, 1976.

Price Line

The index of wholesale prices which rose from 283 at the end of March 1976 to 315.7 in the middle of September 1976 stood at 313.5 on November 27, 1976. The rise in prices has, however, been more of a sectional character Nearly three-fourths of the increase in prices has been on account of three major commodity groups, namely, edible oils and oilseeds, cotton and sugar and allied products. In fact, half of the rise is explained by the rise in the prices of edible oils and oilseeds The prices of certain other commodities like rice jowar and potatoes also came under pressure mainly on account of seasonal factors but of late the prices of commodities like gur, sugar, jowar and potatoes declined and those of rice and pulses showed a steady trend. On the other hand, the wholesale indices of chemicals as also machinery and transport equipment have registered a decline, the wholesale indices in their case being lower by 7% and 1.7% respectively over the end of March 1976. The index of manufactures rose by 5.1% since the end of March 1976 but here again a significant part of the increase had been on account of the increase in the prices of cotton yarn and mill cloth

In order to contain the rise in prices, various measures have been taken in the last few months which have included arrangements for imports of essential commodities like edible oils, raw cotton, tightening of credit against sensitive commodities like oilseeds, edible oils and raw cotton, larger releases of sugar and anti-hoarding operations The supplies of foodgrains through the public distribution system are also being stepped up

Recently a national policy for edible oils and fats has been evolved which, besides stipulating for the removal of formal and informal restrictions on inter-State movement of edible oils, includes extension of price support to groundnut and sunflower seeds, arrangement of adequate imports of edible oils and continuation of restriction on the use of groundnut oil by the vanspati manufacturers In view of the overall shortage of cotton and in order to reduce the pressure on their prices, recently the Government extended the period of free licensing of imports of viscse and polycosic staple fibres and exempted them from the levy of customs duty. The import of polyester fibre has been decanalised and placed on free licensing. Adequate arrangements are also being made for the import of sizeable quantities of cotton. The Government is keeping a vigilant watch on the movement of prices, particularly of essential commodities, and is determined to take all such corrective action as become necessary from time to time.

There has, however, been a faster growth in money supply. This has increased by 10.9% during the current year till November 19, 1976 as compared to an increase of 5.3% in the corresponding period of the previous year. Besides a much larger accretion to foreign exchange assets of the banking sector (Rs. 717 crores), a major factor responsible for the larger increase in the money supply during the current year has been a substantial increase in the bank credit to the commercial sector, namely, an increase of Rs 1421 crores against an increase of Rs. 861 crores in the previous year Even though a large proportion of the increase in the bank credit to the commercial sector was on account of food procurement credit (Rs 637 crores), yet the increase in non-food credit to the commercial sector has also been larger However, in order to keep the expansion of money supply within reasonable limits the Reserve Bank is following a policy of credit restraint and has recently further raised the ratio of cash reserves for the banks and has stressed on the commercial banks the need for the adoption of a stringent credit policy vis-a-vis the commercial sector

The Annual Plan 1976-77 of Rs 7852 crores envisages a sizeable step up in public investment, the total outlay being higher by 31.4% than the original outlay of Rs. 5978 crores for 1975-76

In the Fifth Plan, the public sector outlay has been stepped up from Rs 37,500 crores in the draft plan to about Rs. 42,303 crores inclusive of inventories This is more than two and a half times the outlay of Rs. 16,774 crores that was provided for the public sector in the Fourth Plan.

Irrigation

The outlay on irrigation and flood control has been raised from Rs 2681.00 crores in the draft plan to Rs 3440.18 crores in the final Plan, the investment in power has been raised from Rs. 6190 00 crores to Rs 7293.90 crores and in industry and mining from Rs. 9029 00 crores to Rs 10200 60 crores. Though the revised provision in the Fifth Plan for education and social services is lower, the outlays for the last two years of the Plan in these sectors are higher than those for the first three years.

We have to take all steps to ensure that the economy grows at the rate of at least 5.2 per cent per annum in the last three years of the Fifth Plan. And in order to achieve the physical targets of the Fifth Plan steps have to be taken the ensure that food production goes up from 104.7 million tonnes in 1973-74 to 132 million tonnes, or at least to 125 million tonnes, in the terminal year of the Plan, oilseeds from 8.7 million tonnes to 12 7 million tonnes, nitrogenous fertilizers from 1.06 million tonnes to 2 7 million tonnes, cement from 14 67 million tonnes to 20 8 million tonnes and finished steel from 4 87 million tonnes to 8 80 million tonnes

The target of production of crude oil has been raised from 12 million tonnes as envisaged in the draft Fifth Plan to 14.18 million tonnes by 1978-79 in the Final Plan In the energy sector, production of coal has to go up from 79 million tonnes in 1973-74 to 124 million tonnes in 1978-79 Power generation has also to go up in order to meet the anticipated demand of power of about 70 billion kwh by 1978-79

The finalization of the Fifth Plan proves beyond all shadows of doubt that the economy has turned the corner We have succeeded in insulating our economy from the runaway inflation, and we can now forge ahead with our planned developmental programmes with greater vigour

Plan Strategy

Our plan strategy is based on the diode of development and social justice. We have to ensure that benefits of development percolate to the grass-roots. One of the most efficient means of doing so is to generate employment But employment cannot be generated by a mere increase in public expenditure in the less productive traditional sectors. The rural youth has to be so employed that they contribute substantially to the augmentation of the net national product. We are accordingly going in for the improvement of irrigational facilities and the modernization of livestock breeding, poultry farming, pisciculture, rural handicrafts and allied activities The nationalization of the land-tenure system and the distribution of land among the land-less are also necessary for the creation of more employment opportunities for the rural poor. In order to increase employment and output, the Fifth Plan lays considerable emphasis on programmes for the small farmers, agricultural labourers, and the urban unemployed

Planning has by now become a way of life for our nation. In fact, our strategy of planning is basically Indian and is not based on any foreign model. Though we have to learn from the experience in planning of other countries, we can pursue only our own model of planned development. A Plan that is modelled upon foreign experience alone is like an exotic plant that cannot strike roots in the country. Our plans have to be based on the needs and aspirations of the people and have to be suited to our conditions and experience

In choosing the path of planning we opted out of laissez faire We did so not because of any doctrinaire obsession but because of our determination to eliminate the anomalies and anarchy of uncontrolled economic forces leading to poverty and inequality

Though we have not chosen the path of laissez faire, we have also not chosen the path of regimentation Our planning is not totalitarian. It does not prevent the development of the initiative of the people Our planning is democratic and people-oriented.

Participation of the entire nation in the formulation and the implementation of plans is the alpha and omega of planning People's involvement is not an exogenous attribute to the process of planning; it is an essential corollary of the social philosophy underlying planning.

Planning does not consist merely of a set of techniques. In fact, the input-output matrices or the equations of programming or any other sophisticated tool used by the planners are only some formal and computable methods of expressing the aspirations of the nation. The success of the plan depends not on these forms, but on their real content. The correspondence of a plan to the historical and economic realities of the nation gives it its real content

A plan is not merely an economic document It alters radically our social and cultural life A rational reorganization of the economy necessitates major changes in habits, values and attitudes Hard work, discipline, dedication to national as distinct from sectional causes and a spirit of justice are essential for the successful implementation of a plan. The entire nation has to strive for the creation of these habits, attitudes and values It is only an attitudinal revolution that can nave the way for effecting an economic transformation. A new kingdom of the mind is the only guarantee for the creation of a new, better and a more scientifically planned economy.

The Proposed Age at Marriage

ASOK MITRA

THE NATIONAL Population Policy stated by the Union Minister of Health and Family Planning in Parliament on 16 April last is a document of sagacity, statesmanship and integrated vision. It would however be a pity to pigeonhole it with expressions of praise and approval. The best tribute to it would be to discuss it constantly and thereby keep its many messages alive in the public mind. There are so many aspects to the Policy Declaration that a discussion on more than one of them at a time would demand in ordinate space and time. We have therefore chosen only one aspect for discussion and this is the one with which the operative part of the Policy Declaration opens: age at marriage

For India as a whole the mean age at marriage for females increased from 16 1 to 17.2 (rural 15.7 to 16.7) and for males from 21 4 to 22.2 years (rural 20.8 to 21.6) between 1961- and 1971. But the Report on the First All India Survey of Family Planning Practices in India conducted by the Operations Research Group of Baroda in 1970-71 gave the estimated mean age at marriage as 23.8 years for males and 18 3 years for females for the period of marriages 1966-70.

The Union Minister of Health and Family Planning, in the National Population Policy Statement in Parliament on 16 April 1976, stated: "It has, therefore, been decided that the minimum age of marriage should be raised to 18 for girls and 21 for boys, and suitable legislation to this effect will be passed."

While this announcement must be enthusiastically welcomed, particularly in the context of the Minister's opening statement in this regard that—"Raising the age of marriage will not only have a demonstrable demographic impact, but will also lead to more responsible parenthood and help to safeguard the health of the mother and the child," —the proposed legislation will largely have the effect of blessing a state of affairs already attained and not of ushering in a fresh aspiration in the life of the people. For one thing, taking the past trend in its stride, the mean age at marriage for females may already have moved into 18 and that of males to about 23 by 1976, if one takes into account the upward trend in educational enrolment and the intensification of the struggle for employment since 1971. Secondly, although the mean age at marriage means that a substantial proportion of the population is still below that figure, it also means that a very substantial proportion of the population is already above the mean, for whom the new legislation will carry no forward-looking message, on the contrary plenty to feel smug and even conservative about. For already in 1971 even in the rural areas of all states and union territories except Madhya Pradesh, Rajasthan, Bihar and Orissa, the mean age of marriage of females had substantially exceeded 18. This mean age had been exceeded as long ago as 1971 even in the rural areas of Punjab, Assam, Kerala, Tamil Nadu, Manipur, Tripura, Goa, Daman & Diu. By and large therefore, the country is generally poised in 1976, even without legislation, for exceeding 18 as the mean age ta marriage for females. So far as males are concerned the minimum of 21 in the proposed legislation had already been exceeded as far back as 1971 not only in the urban areas of all States and union territories (except Rajasthan), but even in the rural areas of all states and union territories except Rajasthan, Uttar Pradesh, Madhya Pradesh and Bihar The average difference between male and female ages at marriage is about 5 years at present suggesting that the mean age at marriage for males may well be pegged above 23 For males, therefore, the proposed legislation looks backward even on the current situation, instead of looking forward to establish new norms and aspirations in the mind of the people.

As has been acknowledged generally not only by scholars but by discerning persons of wide general experience, the age at marriage which will really mean a difference t[o] lity and the health of the mo[ther] one that is above 20, more pr[...] above 22, and not 18. A mi[nimum] age at marriage of 18, as ha[s] convincingly argued by exper[ts] demographers and sociologist[s] not quite achieve a demon[strable] demographic impact, nor [...] favour decidedly more resp[onsible] parenthood, nor mahe a d[...] difference to help safeguar[d] health of the mother and the c[hild]

As impression persists, p[...] because the minimum legal [...] marriage is still 15, that, by [...] marriage age, even by small de[...] the reproduction span will [...] duced and along with it fertilit[y] would go down proportionat[e] is important for policy mak[ers] look into the related demog[raphic] and biological facts more close[ly] fore deciding upon a legal [...] mum that will not only achieve [...] tive reduction of fertility, if [...] a major aim, but will also be [...] cial, economic and cultural [...] setter. The result of extensi[ve] search, into the details of whi[ch] are precluded from going for [...] of space, suggests that this [...] mum, at least for women, shou[ld] 23.

There are several correlat[...] raised marriage age. If these a[re] anticipated or simultaneously [...] ded to as matters of countrywi[de] cial and economic policy, legal [...] mum will tend to remain very [...] on paper as happened for a [...] time to Sarda Act as the [...] Statement itself admits. Believ[...] the omnipotence of a legislation [...] a way of deceiving themselves [...] law is as good as enforced as [...] as it is promulgated. A stre[...] apparatus of public education [...] vigorous application of the [...] measures are an essential and [...] term prerequisite of any social [...] lation that is going to have pro[...] ed and far-reaching impact o[n] life style of a people Raising [...] minimum age at marriage is one [...] legislation with versatile im[plica]tions. First, we must mention [...] cation. Raised marriage age [...] essentially demand that scho[...] formal education for girls is a [...]

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to be followed either by higher or vocational education. Otherwise it will be difficult to keep girls usefully occupied or to prepare them for their future. A raised minimum marriage age without education will be so much national waste by way of denial of household or economic enterprise to a young woman. Secondly, education for grown-up girls will demand a revolution in social attitude and behaviour. Unmarried girls will have to be respected as full and estimable citizens, which is still far from being the case Third, more and more useful employment outside of home as well as within will have to be generated to harness the full potential of this enormous human resource. Fourth, attitudes towards employment outside of home even after marriage will have to be modified which too would mean a great augmentation of the appropriate use of this human resource This in its turn will exert its wholesome pressure in favour of equal pay for equal work for men and women. Fifthly, strongly entrenched attitudes toward the code of conduct and ethics so long unilaterally imposed upon young unmarried women will have to change very rapidly, particularly with respect to the right of personal association. Sixthly, attitudes towards marriage as an irreversible sacrament, toward divorce, separation and single living will have to be modified including attitudes toward motherhood out of wedlock, for surely, the number of women would grow who would like to experience the joys and responsibilities of motherhood without being compelled automatically to accept the constraints of wifehood. Seventhly, since raised age at marriage is bound to give a great fillip to the small family norm, serious thought will have to be given to the employment of women, after they have stopped child bearing and rearing their young through the age of six. This will mean an extension and suitable employment programme for women aged 28 or 30 onwards. Lying-in facilities at rural health centres will have to be improved beyond recognition to cater to first and subsequent confinements at higher ages. This will also demand other public health, social and economic policies that will improve the survival of children. In the next place, higher ages at marriage, particularly for women, will vastly augjment the ranks of family planning acceptors Thus raising the minimum age of marriage for women ought to prove one of the greatest and more effective agents of social, economic and cultural change in our country.

The function of a legislation is not only to confirm a social trend but to take it forward to what in the available state of the art is a new realisable goal, which will facilitate further

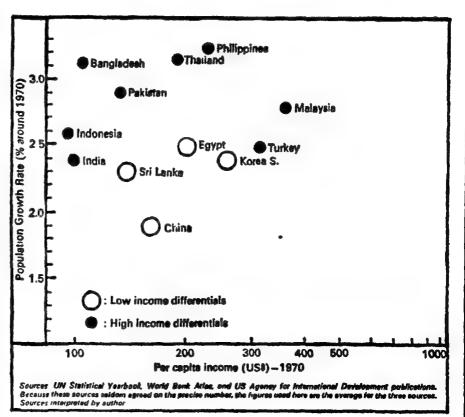
Contd on page 10

Population and equality

An analysis of population growth rates has been made by the Rural Development Committee at Cornell University in a study of local organizational systems and rural development performance It included countries ranging from China and Japan in the Far East to Turkey and Egypt in the Near East.

The comparisons, shown in the accompanying graph, took into account differences in the level of per capita income. As it turned out, those countries which had the more extensive and effective organizational systems reaching down to the local level—and definitively more impressive performance in terms of agricultural productivity and provision of welfare—were also countries with the more equitable distribution of income. This was due in large part to land reform but also to policies giving more equal access to public services and using labour more fully in production processes.

Sources UN Statistical Yearbook, World Bank Atlas, and US Agency for International Development publications. Because these sources seldom agreed on the precise number, the figures used here are the average for the three sources. Sources interpreted by author

Further, these countries showed lower rates of population growth. As seen from the graph, at any given income level, the more organized and equitable cases are all in the lower population growth rate brackets.

Horticulture In NE Region

A. V. BHULESHKAR

ALTHOUGH CLIMATICALLY the North-Eastern region has been well-endowed for the development of horticulture, plantation and forestry, not much has been done so far to exploit the available natural resources for the scientific promotion on these types of cultivation in this region The main constraints for its non-development can be attributed to insufficient infrastructure facilities, paucity of finance and lack of technical expertise to guide the systematic growth required to make a breakthrough on a formidable scale. The responsibility for not attending to the problems of such type of industries also rests with the officials of this region who have not shown much interest in the past to familiarise themselves with the local resources and conditions or made much effort to avail the institutional finance, from the various agencies to bring about longterm sustained growth

The pre-investment survey conducted on these aspects in the North-Eastern region, comprising the seven states of Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, Assam, Manipur and Tripura by the Agricultural Refinance Corporation, a subsidiary of the Reserve Bank of India, has brought to the fore, the vast scope and potentialities that exist in the development of these types of activities in this region It is gratifying to state that the response of different state authorities to undertake cultivation of horticultural crops, plantations and afforestation on scientific lines is encouraging which will enable the flow of institutional finance for the development of such categories of industries in future

In his foreword to the Report on the "Pre-Investment Survey of North Eastern Region for Development of Horticultural crops Plantations and Forests," Shri M.A. Chidambaram, Managing Director of Agricultural Refinance & Development Corporation has pertinently pointed out that "The problem of horticultural development is different and more difficult in view of the highly competitive market for the processed fruit products both within the country and outside. For this reason no scheme for the development of horticultural crops can succeed without a complimentary scheme for the processing of the fruits which in turn would succeed only if the market link is effectively forged"

The study team's main recommendation is to set-up as a joint sector a "Horticulture and Development and Processing Company" having equity participation from Central Government, State Government and one Private Party which should shoulder the management responsibility, and this has been envisaged to make arrangements for ensuring quality production and competitive marketing both in India and abroad This proposal can, indeed, be true for many agricultural commodities in view of perishable nature of the produce Thus, the company should be organised on the basis of vertical integration of production, processing and marketing with the established manufacturers of processed foods and this point has been rightly emphasised in the report as many instances of such a type of vertical integration are found in many agricultural commodities in Britain and Western European countries The areas where initially modern processing units could be started are: Silchar or Lakhimpur in Assam; Jiriban in Manipur; Kumarghat in Tripura, and Damadubi in Meghalaya. Since there is ample scope for development of horticultural crops such as pineapple, orange, lemon and banana in this entire region, the study team has felt that a well-knit arrangement could be worked out with the proposed company and the State Horticultural Departments in the respective states for improved cultivation of pineapple and other fruits

With regard to plantation crops, a special revolving fund has been suggested to be set-up in the ARC with an initial contribution of Rs 150 million from the Central Government to assist especially medium and sick tea estates, as this would rehabilitate them from the bank finance made available from this proposed fund

Development of rubber and coffee plantations can be promoted by th establishment of public sector undei takings by State government About 66,000 hectares can be culti vated in Assam, Tripura and Megha laya initially. Similarly, essentia oil bearing crops such as citrone and pepper-vine can be cultivate in about 7,000 hectares, at the rat of 1,000 hectares in each of the seve states in this region, through publi sector undertakings to be establish ed for development of plantatio crops As regards forest develop ment it has been suggested immediat steps should be undertaken fo formulating schemes for plantation of forest trees such as pine in Megha laya, Cinnamon in Manipur an Holling ir Assam. For the imple mentation of these schemes adequat finance should be made availabl through public sector undertaking t be set-up by the respective state go vernments

India produces some 22 millio tonnes of fruits and vegetables an it was estimated that by the end c the Fourth Plan the production wi go to 32 million tonnes It has bee reckoned that nearly 25 to 30 pe cent of these perishables are waste in marketing operations starting fro picking to the final marketing stag Presently, only one per cent of th total production is used for process ing purposes If the wastage is mini mised and more is utilised for pro cessing, there can be enough nutr tious feed for internal consumptio and for export.

It may be mentioned that the 1. oz. per capita intake of fruit i India is the lowest in the world. I has been estimated by the India Institute of Foreign Trade, tha given the necessary financial hel price incentive and an efficie marketing organisation, India ca export about 1,40,000 tonnes c fruit products and earn valuabl foreign exchange to the tune of R 275 million. It has been purporte that the present yield of horticultu ral produce can be enhanced furthe provided the necessary technica guidance and long-term finance i rendered timely to the growers Th is true for not only the North-Easter region but also for the other majo fruit producing states such as Maha rashtra, West Bengal and Andhr Pradesh

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(Quantity – Thousand Tonnes)
(Value – Thousand Dollars)

Fruit	Production (Quantity)		Experts			
			World		India	
	World	India	(Quantity)	(Value)	(Quantity)	(Value)
Bananas	23024	2700	4733	416177	8	727
Citrus	23912	1250	12679	541551	240	198
Pineapples	3516	76	65	1300	—	2
Mangoes	8500	7000	7	1000	0.6	114
Grapes	54311	130	9401	148962	Neg.	9
Apples	19199	49	1985	292565	Neg	105
Peaches	5159	7	300	33000	—	—
Pears	5214	32	4058	75018	—	—

Source: Survey of India's Export Potential of Fresh & Processed Fruits & Vegetables ITFT-June 1968 - Vol IB.

It may be mentionedhere that be-ides meeting the internal demand or fresh fruits, there is ample cope for exporting fruit products rovided as the pre-investment Re-ort of the region points out "we re able to compete successfully oth in respect of quality and price f products" The report has come ut with the conclusion that "Our roduction of fruits as well as ex-orts constitute such a small propor-on of world production and ex-ort that it is held by experts that e export potential of India can be ealised without much difficulty". he following table clearly indicates e position of India's share of Fresh ruits Production and Exports for e year 1965.

Similarly our yield per hectare in ertain agricultural crops is very w. For example our yield per ectare for oranges is just 10 tonnes compared to 30 tonnes in Spain, r pineapples it is a meagre 12-5 tonnes as compared to 60-70 nnes in Phillipines, and for toma-es 7 tonnes as against 30 tonnes USA and 25 tonnes in France. ence quite a lot needs to be done t only to increase our overall pro-ction, but also our per hectare eld of production. This can be done rough scientific promotion of this pe of cultivation helped by ade-ate finance, agricultural inputs d expert guidance.

In view of the peculiar position the terrain consisting of hills and lleys in the North-Eastern region, other major problem that needs to overcome is of transportation urthermore, there is an impera-e need to settle the present land nure system as most of the land is ld by tribal Chiefs. The findings the Report has stated that "this has direct relevance for the deve-lopment of crops through individual loans." For ensuring successful bank lending for investment in horticul-ture, plantation and forestry deve-lopment, the problem need to be tackled on three fronts: (i) Market-ing, (ii) Hill Area Development Approach and (iii) Strengthening the organisational setup by estab-lishing public sector undertakings. ☐

Proposed Age at Marriage

Contd from Page 8

social and economic change in the right direction. The desirable direc-tion in the present context of our country is, rightly, higher ages at marriage for both males and females than are ruling at present. Legisla-lations on age at marriage are not taken up every other year. The Sarda Act was passed in September 1929 and the next legislation putting the minimum age at marriage for females at 15 came no earlier than 1949. The Hindu Marriage Act (25 of 1956) merely confirmed the minimum age of marriage for Hindu girls at 15, and that of boys at 18. It may be argued that since the mean age at marriage for females in 1949 was already as high as 15, the 1955 legislation was merely blessing a situation already attained, and by the same token the proposed legis-lation would be ratifying a state of affairs already fairly achieved. But 1976 is not 1955 and the country can perhaps take a bigger dose of forward-looking legislation, consis-tent with the induced as well as natural current climate of family and social and economic effort. Instead of pegging a desirable as-piration to a level already largely attained by the country under its own steam, the proposed legisla-tion might think of minima which would propel the country forward from where it is. It is much better for a new piece of legislation to be a pacesetter than a status quoist.

Persons interested in population in whichever way it impinges upon present and future national life will welcome the proposed legislation for two other extremely important rea-sons. This legislation will depend upon two crucial factors for its implementation. Compulsory regis-tration of all births for proof of age on the eve of marriage if not on the eve of admission to institutions or jobs, and compulsory registration of all marriages to lend meaning to the minimum age of marriage legis-lation. These two legislations are bound to open up a whole universe of change, particularly in the status of women in our society. These two concurrent and underpinning legis-lations, rigorously enforced, will along give teeth to the minimum age of marriage legislation, which would otherwise largely remain spurned and ignored.

PLAN
FOR A
SMALL
FAMILY

New Banking Policy

N. RAMACHANDRAN

COMMERCIAL BANKS have been in existence for over a century in our country. If we trace the progress of the banking system over a period of years, we can well say that banking system has been able to show good progress. The three major indicators of growth of the banking system are: growth in deposits, advances and expansion in the number of branches No doubt banks have grown in size over a period of years. We witnessed a period of consolidation between 1951 and 1969. Consolidation was facilitated through mergers/amalgamations of small uneconomic units with viable bigger banks. This way the number of banks operating in the country got reduced, while this was in no way at the cost of expansion of branches In fact the number of offices increased steadily Control over their functioning was strengthened by the Reserve Bank through licensing and inspection

The following table reveals, the trend of the growth of banking system in our country between 1951 and 1969

The table reveals the growth of the banking system, commencing from the planning era A survey of this nature, no doubt, brings to light the part played by banks in our country. But a qualitative assessment of their functioning revealed that banks were expected to perform much more than what they really did.

They have to play a changed role keeping in tune with the changing economic environment and growth strategy. For a country of our size and population it is no wonder that there is still a big backlog in developmental effort with 40 per cent of the population living below the poverty line In such a context there is greater need for supporting and supplementing the efforts of planners.

A close look at the deployment of credit in the past revealed that banks did not attach much importance to

"An Institution such as the banking system which touches and should touch the lives of millions, has necessarily to be inspired by a larger social purpose and has to subserve national priorities and objectives".

—Smt. Indira Gandhi

the growth of primary sectors like agriculture and allied activities as also the welfare of weaker/neglected sectors Till 1969 the major share of bank finance went in favour of industry and other traditional sectors only

Agriculture which plays a crucial role in our country, which generates more than 50 per cent of National Income, is responsible for more than 55 per cent of export earnings providing employment opportunities to more than 70 per cent of population, got a meagre share of hardly 2 per cent of total bank credit all these years It was realised that unless there is a major shift in the lending policy/practices forthwith any talk of promoting growth or na tional resurgence can only be a myt because of the very nature of ou economy with its strong base in th rural sector.

Further the following factoı emphasised the need for a radica change in the management of th banking system in our country.

1. Prevalence of wide gaps in re pect of geographical coverag of banks. Several states wei highly unbanked or unde banked, especially the nort and north-eastern regions suc as Madhya Pradesh, Utta Pradesh, Bihar, Orissa, Assar Jammu & Kashmir, Megha laya, Nagaland etc.
2. The problem of expansion banking offices in rural area was not thought of in the rigl perspective till June 1969. Tl percentage of rural branch to total branches of all banl were only of the order of 2 per cent in 1969 (i e. 18 branches out of 3262 branches Another indicator was the lo credit deposit ratio in rur areas. The few rural branch in existence merely siphon off funds for investment urban and metropolitan are without evincing keen inte rest in the development of ru areas.
3. The policy of planning impli formulation of lending polici in consonance with soci economic objectives. But t 1969, banks did not acco priority for adherence to s cial objectives. Alternative they were more concerned wi

Indicators of Growth

	Dec. 1951	Dec. 1956	Dec. 1961	Dec. 1966	June 196
No. of Banks (all Banks)	566	423	292	100	8
No. of Branches (all Banks)	4151	4067	5012	6636	8262
Population Per Office (in '00)	87	98	88	75	65
Deposits (in crores)	908	1159	2012	3619	4646
Advances (in crores)	627	824	1293	2457	3599
Deposit as % of National Income	9	10	14	15	15.

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SECTORAL DEPLOYMENT OF CREDIT
(1951 to 1969)
(in terms of Percentage)

	Dec. 1951	Dec. 1961	Dec. 1965	March 1968	June 1969
Industry	34	54	61 5	67.5	68.0
Commerce	41	29	25	19 2	19.0
Financial	12	5	4 5	3 4	3.0
Personal/Professional	7	9	5.8	3.7	4 0
Agriculture	2	2	2	2 2	2.0
Others	4	1	1 2	4 0	4.0
	100	100	100	100	100

safety of funds and their advances were highly security-oriented. Problems of rural credit remained outside the province of bank credit. Bank's loanable funds were disbursed only to people who were well off or had substantial means. In short, private sector banking exhibited greater concern for security of funds, quantum of return and profitability.

4. There was also need for professionalising bank managements. Those who had been connected with banking industry had no opportunity to associate themselves in the management of banks.
5. Lastly, banks are also expected to play a developlmental and promotional role in the context of planning This called for a systematic and planned approach towards branch expansion, credit planning/allocation and resource mobilisation.

Social Control :

The need for bringing banks under social control measures was felt for a long time, so that lending policy of banks could be suitably aligned with the social priorities. The National Credit Council formed in 1968 was entrusted with the task of identifying gaps as well as the deserving categories of small borrowers to meet their credit needs fully. Similarly problems of rural credit, small scale industries weaker/neglected sectors etc came to the fore, needing the attention of NCC for getting their due share in the total bank credit. Social control measures initiated in 1968 brought in its wake several administrative and legislative measures like Reconstitution of Boards, of Directors of banks, shift in lending policies, appointment of Banking Commission etc.

Nationalisation of Banks

The steps taken to achieve social control were not commensurate with the needs of the situation. Soon it was realised that social control measures by themselves cannot do much wonder. It was necessary to bring about rapid transformation in the banking system so as to see to the ushering in of a socialistic era Accordingly, 14 major banks with deposits of Rs 50 crore and above were nationalised on 19th July, 1969 The Prime Minister in her broadcast to the nation stated that Nationalisation would achieve the following objectives

1. Removal of control over the banking system by a few;
2. Provision of adequate credit to agriculture, small scale industry, exports ete;
3. Professionalisation of bank managements;
4. Encouragement of new classes of entrepreneurs;
5. Provision of adequate training to personnel and reasonable terms of service for the bank staff

Nationalisation marked an important era for the banking system Nationalisation brought 82.7 per cent of aggregate deposits and 83.6 per cent of aggregate bank credit under the direct control of the government, banks were called upon to undertake an accelerated expansion of their activities both geographically and functionally. They were expected to fill up the credit gaps and bring about desired changes in the deployment of credit, particularly to meet the needs of sectors which were hitherto starving for bank credit. They were expected to tackle problems of rural credit in the right perspective, through a phased programme of branch expansion in rural areas and also through evolution of suitable, integrated credit schemes, specially designed to meet rural credit needs. They were expected to remove regional imbalances in the spread of banking offices in the country. All these measures undoubtedly required necessary organisational/structural changes.

II

ASSESSMENT OF NATIONALISED BANKING

I. Deposit Mobilisation :

Deposits as percentage of national income moved up from 15.3 in June 1969 to 25 by December 1975. Deposits moved up from Rs 4646 crore to Rs 13,482 crore during the same period. Per capita deposit moved up from Rs 88 in June 1969 to Rs 246 by December 1975.

Similarly number of deposit accounts moved up from about 1 crore in June 1969 to about 5 crore by middle of 1976. For a country like India, banks are yet to make much headway. Mobilisation of deposits is all the more required for catering to the needs and competing claims of different sectors—in addition to meeting increasing credit needs of food procurement and also credit needs of public sector, especially since nationalisation. As such banks have to devise various schemes of deposits The need for observing the principles of flexibility and innovativeness in — deposit mobilisation hardly requires any emphasis No doubt banks have to reckon with several factors such as competition among banks; competition from corporate sector and other non-banking financial intermediaries in their task of deposit mobilisation.

II. Deployment of Credit :

Bank credit has increased from Rs 3,523 crore in July 1969 to Rs 9,769 crore by December 1975. The number of borrowal accounts increased from 10 lakh in June 1969 to 65 lakh by the middle of 1976. The priority sector absorbed Rs 2,377 crore out of Rs 9,769 crore in December 1975 (accounting for 24.3 per cent of total credit). The following are the different perspectives in credit management:

(a) Evolution of a credit plan at the micro and macro levels to plan for wise and judicious deployment of funds to the preferred sectors to meet the social objectives.
(b) A scale of priorities was drawn so as to identify the

needs of weaker/neglected sectors.

(c) Change in the concept of lending from the security-oriented approach to purpose-oriented/production-oriented approach.

(d) Area approach in lending and supervised integrated credit schemes gained more currency. Several new credit schemes came into operation specially designed to meet the needs of weaker/neglected sectors.

Banks should provide finance at concessional rate of interest at 4 per cent under *Differential Interest Rates* scheme in backward areas to help the economically backward people (satisfying certain criteria in regard to income and land holdings).

The table gives the public sector banks advances under differential Interest Ratesscheme since the inception of the scheme

PUBLIC SECTOR BANKS ADVANCES UNDER DIR

	Dec. 1972	June 1973	June 1974	June 1975
No. of Borrowal Accounts	26,202	1,08,173	2,74,826	3,47,32(
Total Amount Outstanding (in Lakhs)	87.3	432.7	1,123.4	1,484.(
DIR Advances as % to total Bank Credit	0.02	0.08	0.17	0.1§

Special schemes have also been evolved to promote employment opportunities, through self employment schemes Branch officials have been delegated with adequate powers to expedite credit sanctions leading thereby to quicker disbursement of credit. The following sectors were identified as priority/weaker sectors for the purpose of disbursal of credit,

1. Agriculture,
2. Small Scale Industry and
3. Exports falling under *Priority Sectors*

Transport operators (owner drivers), retail Traders, Small Businessmen, Professional and Self-employed, Loans for pursuit of Education etc. under weaker/neglected sectors Thakker Committee formed in 1970, recommended the establishment of Credit Guarantee Corporation of India to cover the risks involved in lending to weaker/neglected sectors. The corporation was formed in 1971.

Banks had to meet the credit needs of public sector projects such as Electricity Boards, Water and Drainage Boards, slum Clearance Boards, Housing Boards etc. In short, banks have to have a development/growth-oriented outlook while exercising their lending function.

As a result of the marked shift in the lending policies, we have a new class of borrowers today. In the past banking system never considered the following categories of people as worthy risk for extending credit. But things have changed so much that banks' share of advances to these categories of people show increasing trend. The examples of new class of beneficiaries are: Launderers; barbers; tailors; cobblers; roadside hawkers; vegetable vendors, small businessmen; artisans; physically handicapped; indigent students; tribal people; refugees; lepers; beggars; prisoners in jails; ex-convicts; destitutes, orphans; sanitary workers etc.

Apart from these, banks provide several social services such as conducting classes on health, sanitation, adult literacy, family planning etc in rural areas.

They also associate in the collection and distribution of medicines freely to the poor through drug banks and supply books to indigent students through Book Banks Besides they impart technical training to artisans and craftsmen; instructions in management principles; accounting etc. to businessmen and entrepreneurs.

The pattern of advances to the priority sector by public sector commercial banks since 1969 is presented in Table 1 at the end.

Similarly the trend of growth of borrowal accounts relating to priority sector advances of nationalised banks between June 1969 and September 1975 is presented in Table II at the end.

Financing Exports :

Export Trade constitutes a vital sector of the nation's economy. Liberal credit facilities are therefore made available to exporters as part of the overall scheme for export promotion. As at the end of June 1969 export credit amounted to Rs 270 crore only but by April 1976, it had moved upto Rs 981 crore. The extent of financial assistance rendered since 1969 is gvien below:

Twenty Point Economic Programme:

The Prime Minister said that the object of the 20 Point Economic Programme is an honest attempt to help the havenots and the weaker sections in the country. It is a programme of the people, fo[r] the people and by the people. Each one should participate in it to mak[e] it a success.

With the announcement of th[e] 20 Point Economic Programme by the Prime Minister on July 1, 1975 the role of banks has considerabl[y] enlarged.

A striking feature of the 20 Poin[t] Economic Programme is its realistic approach and the sense of urgency it has generated in the countr[y] through multipronged attack on th[e] immediate problems facing th[e] country, more particularly to increase the production of essentia[l] commodities, to ameliorate the conditions of the weakest among th[e] weaker section of the population. Banks are exhorted to effectively respond to the emerging need[s] of the community by associatin[g] themselves with the programme i[n] so far as they relate to provision o[f] finance to landless labourers, bonded labourers, small and margina[l] farmers, artisans etc.

Out of 20 points, the following 1[2] points are of much relevance:

1. Procurement and distributio[n] of essential commodities;
2. Assistance to landless labourers being allotted house sites
3. Assistance to landless labourer[s] being allotted land;
4. Assistance to released bonde[d] labourers;
5. To fill the credit gap followin[g] moratorium on rural indebtedness and its progressive liquidation;

Scheduled Commercial Banks Advances to Exports

Year	Export Finance (in crore)
June 1969	270
Dec. 1969	303.1
Dec. 1970	366.1
Dec. 1971	459.3
Dec. 1972	461.5
Dec. 1973	689.4
April 1974	749.0
April 1975	834.0
April 1976	981.0

6. Implementation of minor irrigation programmes;
7. Assistance to handloom sector;
8. Workers association in industry;
9. Assistance to holders of national permit for road transport;
10. Scheme of supplying essential commodities to students in hostels;
11. Scheme of supplying books and stationery to students at controlled prices;
12. Apprenticeship Scheme for enlarging employment and training opportunities

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The most significant achievement has been the rapid expansion of the branch network in the country. The total number of branches has increased fom 8262 at the end of June 1969 to 20446 at the end of December 1975 As a result the population per banking office got reduced from 65,000 to 27,000 during the period under review.

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Banks have also consciously endeavoured to go into areas that in the past were altogether neglected by them. As a result the rate of opening of branches in poorely banks states has been much higher than the national average. The table shows the progress achieved by Commercial Banks in reducing the regional imbalances in their branch network

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Conclusion :

The aim of the banking policy in India is to uplift the underprivileged class in rural India from subsistence to surplus existence A bank is a community based organisation and it should take steps on an ongoing basis to blend its business goals with social obligations. The progress of the banking system is quite phenomenal both quantitatively and qualitatively.

No doubt banking industry has come a long way after nationalisation. The banking system has undergone a total metamorphosis. It is well poised for a major break through to become effective instrument for economic development and social change. Conceptually Indian Banking has become mass banking over the years.

The pace and expansion of the banking system during post-nationalisation period has been very fast placing heavy demands on its ingenuity and resources The capacity of the banking system to play the role of a catalyst in development has considerably improved Banks have by and large responded to meet the new challenges

However a study of this nature brings to light the various problems of concern to the banking industry in the current context.

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5. *Modern Management Techniques* : Modern Management Techniques including automation/mechanisation have to be employed to the desired extent expecially in an expansionary phase Development of management science to improve decision making by resorting to new tools is an urgent necessity today. A few of the areas where management science techiques as an aid to managerial decision making may be made applicable are: Profitability planning; loans and deposits forecasting; credit rating; Bank Cost Accounting; Manpower Planning; asset management; market analysis etc.

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9. *Inter-bank Transactions* : Service/Collection charges for inter-

6. Implementation of minor irrigation programmes;
7. Assistance to handloom sector;
8. Workers association in industry;
9. Assistance to holders of national permit for road transport;
10 Scheme of supplying essential commodities to students in hostels;
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TABLE I

Advances by Public Sector Banks to Priority Sectors

(Rs. In Crores)

	June 1969	June 1970	June 1971	June 1972	June 1973	June 1974	June 1975	Sept. 1975
Agriculture Direct	40.2	160.4	206.3	232.0	297.8	391.5	511.6	575.6
Indirect	122.1	141.2	134.6	156.5	170.8	194.1	256.6	266.5
	162.3	301.6	340.9	388 5	46.6	585.6	768.2	842.1
	(5.5)	(8 4)	(8.3)	(8.4)	(8.6)	(8.7)	(10.0)	(11.0)
Small Scale Industry	251.1	369.5	442.1	528.5	641.8	868.3	942.6	954.1
	(8 5)	(10 3)	(10 8)	(11.4)	(11 8)	(13.0)	(12.3)	(12.5)
Road & Water Transport	5 5	24 4	40.0	50 5	62.8	83.4	113.1	125.8
	(0.2)	(0.7)	(1.0)	(1.1)	(1.2)	(1.2)	(1.5)	(1.7)
Retail Trade/Small Business	19.3	42.9	72	77 4	94.8	117 7	133.8	140.3
	(0.6)	(1 2)	(1.8)	(1.7)	(1.7)	(1.8)	(1.7)	(1.8)
Professional/Self-Employed	1 9	6.7	8.6	12.1	21 2	29.8	36.7	39.2
	(0.1)	(0 2)	(0.2)	(0.2)	(0.4)	(0.4)	(0.5)	(0.5)
Education	0.8	2 0	3.7	3 0	3 2	3.5	3.9	4.5
	(neg.)	(0.1)	(0 1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Total Priority Sector	440.9	747 1	907.3	1060	1292 4	1688.3	1998 3	2186
	(14.9)	(20.9)	(22.2)	(22 9)	(22.8)	(25.2)	(26 0)	(27 6)
Total Banks Credit	3017	3578..	4080	4622	5430	6694	7676	7638

(Figures in brackets indicate percentage to total credit).

bank transactions be done away with atleast among nationalised banks so that the benefit accruing as a result of this be passed on to the customers

10 *Uniformity in Systems, Procedures ; & Practices* · Standardisation of systems and procedures and streamlining of administrative methods are desired among the nationalised banks

11. *Systematic development of human resources* is quite essential to cope up with the manpower requirements. The problem of rendering efficient service centres round on the ability of the banking system to have talented staff which could be achieved through suitable recruitment, selection and training programmes. Thanks to the efforts taken for the setting up of National Institute of Bank Management in 1969, an apex body for training of bank personnel. The Institute is engaged in providing training to higher level personnel in management and functional areas; research into problems of concern to the banking industry; providing consultancy to individual banks to translate policies and also offering education at postgraduate level.

12. *Flexibility in Operations* . The expansion of the magnitude which the banking system has witnessed in the recent past, has thrown up tremendous challenges and brought to the fore serious problems of internal administration and control The scope and coverage of guarantee organisations have been (CGO & CGOI) considerably enlarged. The definition of small scale industry itself was revised by raising the amount of investment in plant and machinery to Rs 10.00 lakh. Various incentives have been provided for promotion of industries in backward regions. The insurance cover for deposits of commercial—cooperative banks was increased to Rs 20,000/- effective from 18th July

TABLE II

Borrowal Accounts of Public Sector Banks to Priority Sector

(In '000)

	June 1969	June 1971	June 1973	June 1975	Sep 1975
Agriculture	164	817	1322	2389.5	2749
Small Scale Industry	51	100	159	229	236
Road Transport	2	23	44	73	78
Retail Trade/Small Business	33	147	231	390	420
Prof/Self-Employed	8	42	107	207.5	221
Education	2	7	10	12	15
TOTAL :	260	1136	1873	3301	3718

The total number of borrowing accounts moved up from 2,60,142 to 37,18,898 between June 1969 and September 1975

1976. Reserve Bank has come out with ceilings for maximum rate of interest on advances as also interest rates for overdue advances. The credit policy pursued by Reserve Bank was development/growth oriented and banks could respond to the directives of RBI from time to time. Further, Banks have to coordinate their efforts with cooperatives and other developmental agencies.

13. *Role of Employees* : The greatest asset of a bank are its men. The performance of the banks in the developmental and catalytic roles is inextricably interwoven or linked with attitudes of employees towards their organisation, superiors and last but not the least customers. There is need for national outlook and sense of participation for employees working in banks. If banking is to succeed, employees must know how to move with customers and create good image in them. Proper training and motivation will help to achieve the desired results. The problem of motivating employees to give out their best willingly and creatively is an art. Successful management believes that with proper orientation and motivation, it could be possible to bring about necessary attitudinal changes in employees. The importance of human relations hardly requires any emphasis in this context. Bank employees will have to identify themselves with the way of life, problems, hopes and aspirations of the people in the areas where they serve. Banks have to bestow attention in such areas as training, job enrichment, job enlargement, job satisfaction, suitable appraisal systems etc. for improving efficiency and enlisting employees support. Management has to make work assignments a more satisfying experience for every employee and at the same time tap his energy, enthusiasm, knowledge and creativity to the fullest extent.

14. *Development of Successful Managers* : Good management is a critical input in the success of a business. Bank Manager, who is the man on the spot, is everything rolled in to one agent, legal adviser, accounts specialist, technical expert, personnel manager, management specialist, financial wizard etc. He has to play different roles successfully. Manager has therefore to face tremendous challenges. Added to his usual roles, he is presently to accept the role of a pioneer for implementing the 20 *Point Economic*

(*Contd. on page* 27)

TABLE III

Centerwise Distribution of Commercial Bank Offices

	June 1969	June 1971	June 1973	June 1975	Dec. 1975	April 1976
Rural	1832 (22.4)	4279 (35.6)	5561 (36.2)	6806 (36.4)	7376 (36.1)	7499 (36.)
Semi-Urban	3322 (40.1)	4016 (33.4)	4723 (30.8)	5570 (29.7)	6163 (30.2)	6274 (30)
Urban	1447 (17.5)	1778 (14.8)	2573 (16.7)	3266 (17.4)	3589 (17.5)	3671 (18)
Metropolitan	1661 (20)	1940 (16.2)	2505 (16.3)	30.88 (16.5)	3309 (16.2)	3373 (16)
TOTAL :	8262	12013	15362	18730	20437	20817

(Figures in brackets indicate percentage to total number of branches).

TABLE IV

Indicators of Growth – Statistics at a Glance

	Dec. 1969	June 1970	Dec. 1971	Dec. 1972	Dec. 1973	Dec. 1974	Dec. 1975
No of Commercial Banks	85	85	81	81	81	81	81
Scheduled	71)	72)	72)	72)	72)	72)	73)
Non-Scheduled	14)	13)	9)	9)	9)	9)	8)
No. of offices (in all banks)	9011	101311	12944	14694	16468	18180	20446
Population Per Office (in '000)	60	54	42	37	33	30	27
Total deposits (in crores) Rs.	5173	5275	7253	8732	10521	11440	13482
Average Deposit per Office (in lakhs) Rs.	57	53	56	59	64	64	66
Deposit Per Capita Rs.	96	98	132	159	192	209	246
Total Credit (in Crores) Rs.	3729	4213	5060	5590	7117	7993	9769
Average Credit Per Office (In lakhs) Rs.	41	42	39	38	43	46	48
Credit per Capita Rs.	69	78	92	102	130	144	178
Deposit as % of N. income.	15	15.9	17	19	22	21	22

Total Sch. Comm. Banks deposits as on 10.9.76 Rs. 15.814.18 crores. Credit : Rs. 11.725.24 crores.

Yojana Quiz

1 First telegraph line opened between England and India.
(*a*) 1757
(*b*) 1851
(*c*) 1865

2 First exhibition of Cinema in India was on
(*a*) 3 February 1801
(*b*) 7 July, 1896
(*c*) 1 June 1905

3. First talkie film in India was shown at Elphinstone Picture Palace, Calcutta in
(*a*) 1896
(*b*) 1910
(*c*) 1929

4. When was the playback system in the films introduced in India?

5. The first woman Chief Minister in India was :
(*a*) Sarojini Naidu
(*b*) Sushila Nayar
(*c*) Sucheta Kripalani

6 Name the places:
(*a*) City of dreaming spires
(*b*) Eternal City
(*c*) World's loneliest island
(*d*) Garden of India

7. The deepest lake in the world is
(*a*) Dal
(*b*) Ozero Baikal
(*c*) Lago Titicaca

8. What is the world record for rope-skipping?

9. Three lions from the Gir forest were released in U.P where?

10. What is the widest waterfall in the world ?

Answers

1. (*c*) 27th January, 1865, 2. (*b*) First exhibition of Cinema in India was by Lumiere Brothers on July 7, 1896.
3. (*c*) The film Universal Melody of Love was shown in the year 1929
4. In 1934 in a Bengali film Bhagyachakra directed by Nitin Bose
5 (*c*) Suchota Kripalani U.P 1963-67, 6 (*a*) Oxford, (*b*) Rome, (*c*) Tristan da Cunha (Mid-Atlantic), (*d*) Bangalore, 7. (*b*) **Ozero Baikal** (Siberia) average depth nearly 2,300 ft deepest part 6,365 ft.
8. 32,089 turns (without a break) by J P. Hughes in 3 hrs. 10 min on October 26, 1953 9 Chandraprabha Sanctuary
10 Khone falls (Laos) with a width of 6 7 miles and a flow of 1,500,000 cu ft per sec.

Quotation Box

Democracy cannot be a one-sided thing. It can only work if all sections subscribe to it and are willing to curb their liberty to that extent where it treads on the liberty of others. Only then democracy can function.

* *

It was only when foreign pressure stopped that I decided to call for elections since I believe that India should not bow down to any foreign nation.

—Indira Gandh

* *

History shows how many affluen people have been impoverished or have sought voluntary impoverishment dur ing the freedom struggle and after anc how many who began with little o nothing had enriched themselves ove these years

—D.K. Barooal

* *

I talked to the Shah of Iran recentl about what he did with prisoners and hi reply was 'we do not have prisoners, w just shoot them.

—Mohammad Yunu

* *

India does not intend to be governe by the definition of democracy that any one outside may seek to decide

—B.K. Nehr

* *

You rich people are getting richer, an the poor people are getting poorer, an the world is going to blow up.

—The Shah of Ira

* *

It looks as if democracy has yet t come of age in our country, thoug every politician speaks in its name an claims to be its saviour

—The Hind

* *

In higher terms, true democracy arriv only when the psychological veil of sup rior - inferior seperateness is sent an the human millions are unified by a s cial awareness of the divinity in all.

—Mr. Justice V.R. Krishna Iyer.

* *

It is an interesting study in give-anc take for the Jansangh to accept Gandh an Socialism, for Mr. Morarji Desai t endorce the concept of bonus as deferr wage, for Mr. Charan Singh to agree t exemption of small agricultural holdin from the incidence of land revenue ai for the former Swatantra members accept "deletion of poverty as a fund mental right"

—K.K. Katy
in the Hin

ABUJHMAD—The Land and Its People

N. D. SHARMA **Photographs : P. K. KAPOOR**

There are several text-book examples of development efforts in the tribal and backward regions of India Perhaps none can be so interesting for the challenge that such regions throw up as Abujhmad in Madhya Pradesh Here you have the classic example of a people in whose vocabulary change finds no place Insular shy, sensitive and contented, the people of Abujhmad are poor even by Indian standards

The following spot report by Shri N D. Sharma who trekked in this district and talked to people there reveals the many facets of the problem of development

THE 14,000-odd inhabitants of the Abujhmad region in Bastar district in Madhya Pradesh are referred to as the "Children of Nature". They are a simple, sturdy, hard-working people, deeply attached to their land, their numerous deities and their beliefs They are completely unaware of the modern, civilized world

Abujhmad covers an area of about 2,200 square kilometres in Naryanpur, Bijapur and Dantewara tehsils in the southern part of the district It is a rough, rugged and mountaneous terrain, impossible for outsiders to penetrate except during the few summer months Flooded streams and dense forests infested with wild animals make walking in the area a hazardous venture for the good part of the year

Till about a decade ago Abujhmad was practically a landlocked island shrouded in complete mystery. Only second-hand and third-hand accounts of the life of the people were available Hardly anyone ventured to go there and see for himself how the tribals of the area lived A book on Bastar (published in 1967) says, "Persons who have crossed Abujhmad from end to end during the last 100 years could be counted on the fingers of one hand".

Things have, however, changed a bit during the last six or seven years. A few official survey parties have visited the area, thanks to the initia-

tive of an enterprising administrator, Mr B.D. Sharma, who was Collector of Bastar district for a number of years. Based on the reports of these survey parties, a core programme for the development of Abujhmad has been prepared. Its implementation, though, requires a very high level of dexterity on the part of those entrusted with the task.

The Abujhmadias, as the inhabitants of the area are known, are a very sensitive, shy and proud people. They obviously resent any offer of outside help. I got an opportunity of visiting the area and talking to the people last April when I accompanied Mr Arvind Netam, Union Deputy Minister for Education and Social Welfare, in his four-day *padayatra* across Abujhmad. We entered the region from the south – at Bedre village – and walked northward covering a distance of some 100 kilometres.

By our standards, the Abujhmadias are a very poor people. Kallu (about 35) of Lanka village could not tell me what might be the biggest amount of money with a single family in his village but he recounted several families who he said did not have even a single rupee with them. Kallu, who had once worked as a casual labourer in the adjoining Chanda district of Maharashtra and could speak a little bit of Hindi, had seen 20-rupee and 100-rupee notes. But none of the other five persons I talked to could even claim to have seen such currencies. Two of the five had not seen even a ten-rupee note.

Through Kallu I asked a group of Lanka women what they expected the Government to do for them.

The women, many of them carrying emaciated babes in their arms looked at Kallu, then at me, apparently trying to understand my question. There was no reply.

The question was repeated with a little modification: "The Government wants to help you. What are your needs?"

The women chuckled. Again there was no reply.

Still I asked the village man to repeat the question once again. He repeated it.

This time the women discussed among themselves for a while. Then some of them replied almost at the same time: "We do not need anything."

The feelings of Abujhmadias in regard to outside help were better expressed by an old lady, named Gogai, at Padmeta village in the interior of Abujhmad. She was asked the same question: "If the Government were to offer help to you, in what form would you expect it?

Gogai replied, "My two sons look after me very well. I do not want anything."

'Well, do your sons need any assistance from outside?" I asked.

"No, they are strong enough to fend for themselves."

"O.K., you have two sons. What about those who have no sons or no one to support them and are not strong enough to work for themselves", I persisted.

Paddy husking is done by the tribals in the time honoured fashion. The rice thus pounded retains much of the bran which is rich in Vitamin B

A village market is usually held once or twice a week. People come here to sell and buy. Barter is very common.

Without the slightest hesitation, Gogai said: "The community takes care of them."

After a short pause she added· "If someone comes to our village, we do not expect anything from him."

The men and women standing nearby nodded in support The happiest among them appeared to be Gudchha, Patel of the village, who had been trying to convey to me the same thing in our half hour meeting. As I left Gogai's place, the Patel rushed to her and told her something which I understood to be his gratitude towards the old lady for giving right answers to my questions.

The entire Abujhmad region has been kept out of normal administration for the last 40 years or so Revenue, forest, excise and police laws have been made inapplicable to the inhabitants of the area. They manage their own affairs according to their tribal customs.

An outsider wishing to go to Abujhmad has to obtain prior permission from the authorities Photography in the area is restricted. Under no circumstances is a movie camera allowed inside the territory The officials explain that these steps have been taken with a view to protecting the innocent tribals from contractors, preachers, filmshooters and other species of exploiters An inevitable outcome of these steps has been the complete isolation of the inhabitants of Abujhmad from the rest of the world

No wonder that the Abujhamadias still live a primitive life They belong to a branch of the Gonds and speak a dialect called Madia By and large, they have dark complexion but sharp features though occasionally one would come across a man with surprisingly fair colour. Only those who have worked at one time or another as casual labourers at some faraway places can count upto ten

An Abujhmadia's first love is his land where his forefathers lived and cultivated A village named Kutul was once deserted because of prowling tigers. This was in the latter half of the sixties. The village remained deserted for six years. The villagers would come there once every year for "dhoomamati" – worship of their fatherland In 1971 when the danger from the tigers was removed, all the villagers returned to their old place

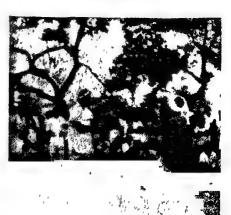
The number of villages in Abujhmad has been estimated in an official survey report at 200. There are not many villages with populations nearing the figures of 200. Some villages have as few as half a dozen families, the number of persons in a family averaging between four and five. A large number of villages have populations of 50 to 100.

Houses are made of bamboos, bushes and grass – without a trace of cement or brick Each house has a courtyard fenced by the bamboos. Houses are generally neat and clean. The Abujhmadias' household things are very few. Metal utensils are extremely rare. Their main diet is *kosra*, an inferior variety of rice, which they grow – along with some pulses and vegetables – on slanting hillocks after clearing and burning the woods. They cultivate a given area for two or three years and then shift the site of cultivation to another nearby hillock. This is called 'penda' cultivation similar to jhooming Sometimes, as they change over to a new site for "penda" cultivation they shift their village also.

"Penda" cultivation always depends on moderate rains In any case the crop is never sufficient for them So they supplement their agricultural produce with forest fruits roots and flowers and meat which now has become scarce.

Their principal meal consists of boiled kosra—liquid as well as dry—with a little salt. An Abujhmadia walks 100-150 kilometres to some peripheral town to buy salt or cloth the only important commodities they need from outside Their clothing requirements are very little They require just a small piece of cloth to wrap round their loins They get salt or cloth in exchange for agricultural or forest produce which they carry with them. Money hardly plays any role in their lives

They are a sturdy people but find themselves helpless in the face of

Cock fight is a very popular sport at the village market

deadly diseases, common in the area. A health survey conducted in Abujhmad notes poignantly that the Abujhmadia "has a great but totally underserved reputation for his skilful use of herbs and roots to treat the sick. Actually the helplessness of the Abujhmadia in the face of the simplest injury or ailment is pathetic. A simple sore caused by a thorn is neglected till the limb becomes one big vast sore".

The primary need of the Abujhmadias is, thus, of medical facilities. Some discussion has already gone on how this can best be provided. Posting a doctor here and a doctor there will not serve any purpose as the area is so vast and the villages are widely scattered A mobile dispensary on a jeep is unthinkable as there are no roads in the entire region. One plausible suggestion is ,o organize a few peripatetic eams of doctors which could visit fixed centres on fixed days of the week and administer drugs to the sick. Another suggestion worth consideration is to stock the *ashram pathshalas* (residential primary schools) with some patent medicines and give a short training to headmasters in the administration of these medicines There are already eight such schools in Abujhmad and more will be opened in course of time

Their next requirement is of salt and cloth. For this, shops can be opened at selected villages where the tribals should be able to buy these and other essential things at reasonable prices.

However, the real difficulty will arise when efforts are made to open up Abujhmad for development. The Abujhmadias look upon outsiders as harbingers of evil The official survey report points out that a sizeable number of the inhabitants of Abujhmad consist of those who have, during the past decade or so, migrated from the adjoining tribal areas where some development work was started. Similarly, the construction of a road near the Abujhmad border led the tribals to withdraw deeper inside the territory.

The survey report warns—and very rightly—that it would be tragic if the Abujhmadia is harassed in the name of development. Any road construction programme in the area has therefore, to be taken up with great caution. There is also a fear that roads will bring a large number of traders, contractors and others who will start exploiting the Abujhmadias as they have done in other

Like all tribal folk, the people of Abujhmad love to dance and sing to the beat of drums

Below: An enthusiastic crowd watching a folk dance

[illegible] by [illegible] [illegible] taking up road construction programmes in Abujhmad, it will be important if some sort of land survey is made in the area and records of land ownership are prepared. This will prevent encroachment by outsiders. But preparation of such records will not be an easy task for at least two reasons. First, there is no concept of private property in Abujhmad. The land belongs to the community, not to individuals. Secondly, they view with suspicion anything being done by outsiders. So, this task will have to be handled with great care.

It is a moot point whether introduction of irrigation schemes in Abujhmad at the present stage will bring about improvement in the agricultural yield. The survey report says that 85 per cent of the fallow land in Abujhmad is that on which "penda" cultivation had been done earlier. It is also true that the yield in "penda" cultivation is never sufficient for their bare sustenance. But the Abujhmadias are greatly attached to their "penda" cultivation. Introduction of anything which may interfere with their "penda" cultivation has, to wait till the tribals themselves see the futility of such an exercise and feel the need for better methods of cultivation, which can give them greater yields at less trouble.

Meanwhile, a detailed survey of soil in the area can be done with a view to finding out what else can be grown there and if it is possible to grow fruit-bearing trees like guava, mango, fig, etc. The Abujhmadias' right in the forests should not, be disturbed. Thought can also be given to setting up—though gradually—dairy farms, piggeries and poultry farms in the area. The people can also be trained in small scale industries. The [illegible] part of Abujhmad, to give an example, abounds in bamboos and the inhabitants of this region can be given training in bamboo work.

[illegible] the transportation out of Abujhmad and sale of their products—agricultural, forest or otherwise—would have to be entrusted to some governmental agency. One suggestion is to set up centres at [illegible] places where the Abujhmadias can bring their commodities for sale. From these centres the commodities can be transported out of the region by the agency constituted for the purpose. Till roads are constructed, introduction of mules in the region for transportation can be considered.

Mr Arvind Netam questioned a number of Abujhmadias on the general administrative structure in the adjoining region with which the Abujhmadias are somewhat familiar. Each one of them strongly resisted any idea of introducing the systems of patwaris and forest guards. An Abujhmadia is keenly aware of the manipulations which petty officials are capable of. They would be happy with their present system of "self-management" in their territory. Some of the headmen said they would not mind construction of a road in the area but would not like a merchant to come and settle on the roadside. They would continue with walking long distances to make their purchases rather than have a trader from outside settle down there. The Abujhmadias think that in the adjoining areas a number of money lenders and traders who came from outside have deprived tribals of their lands. Naturally, the Abujhmadias resent any suggestion for bringing about any change in the present set-up.

In his report to the Prime Minister about his impressions of Abujhmad Mr Netam has cautioned that a "stereotyped programme of development" is likely to do more harm than good to the Abujhmadias. He has suggested that the entire Abujhmad area may be managed by a "panchayat" comprising the village leaders of the area. They should be given enough powers for the management of their economy including the development programmes in which they should be assisted by sympathetic and dedicated officers. It is necessary that all those who opt for service in this area "which is one of the most difficult terrains in the central India" are suitably compensated and their services recognised according to Shri Netam. □

MADHYA PRADESH

An Impressive Record in Family Planning

MADHYA PRADESH HAS achieved a near miracle with its excellent performance in family planning this year by completing 8,04,739 sterilizations till December 14, 1976. This represents a 300 per cent improvement in achievement and, thus Madhya Pradesh became the first State to cross the figure of three-times the annual target—2,67,500. This has been possible in the first eight months of the current financial year.

Compared to a meagre 29.6 per cent achievement in 1973-74, today's 300 per cent achievement speaks volumes about the measures taken by the State Government to strengthen the infrastructure and to create a favourable atmosphere to persuade large numbers of rural population to accept the small family norm.

The achievement rate district-wise represented a healthy competition among the district officials who vied with each other in motivating the people living in remote rural areas. The performance individually in 45 districts with relation to their respective annual targets is very interesting. Two districts have done six times, three districts have done five times, five districts have done four times, five more districts have done three times, seven districts have done two times, and twenty-one districts have completed their annual targets.

Maintaining the present tempo of the campaign, during the current fortnight and in the coming three months, the State Government hopes to achieve much more tangible and substantial results and win the national prize for best performance in family planning. The State also hopes to get a large amount of Central assistance, eight per cent of which is linked to the achievement in family planning under the National Population Policy.

Another remarkable thing that deserves mention is that in the State during the current campaign, the trend towards the costlier tubectomy operation has been reversed with greater preference to cheaper and easier vasectomy operation. As compared to the last year's ratio of 42 per cent vasectomies as against 58 per cent of tubectomies, the State has now achieved the ratio of 92.7 per cent of vasectomies as against 7.3 per cent tubectomies.

The State Government hopes to reach about 2 million couples by March, 1977. The State had been brought to the notice of the Family Planning Bureau and the response from the minority communities was quite encouraging. □

The Fundamental Duties

M. N. MORJE

The chapter on Fundamental Duties has been introduced not to smother rights but to establish democratic balance. Our Constitution was notable for highlighting directive principles along with Fundamental Rights. Neither can bear flower and fruit without performance of the duties.

—Smt. Indira Gandhi

The Concept of duties is very ancient to Indian Civilization. The Fundamental Duties are found in Edicts of Ashoka, Teachings of Bhagwat Geeta, Bible, Quran and in the teachings of great kings and saints. It was suggested by some of the opposition leaders that it would be necessary to provide for the punishmeut in the event of committing breaches of Fundamental Duties. This suggestion could not be accepted as it would have resulted in ignoring the historical, social, religious approach towards the duties. The jurisprudence of any religion has taught us that duties come first and the rights as benefits arising from duties well performed.

WHILE DEFENDING the chapter on Fundamental Duties in Parliament Smt. Indira Gandhi, the Prime Minister of India made the above observation. When the debate on Constitutional Amendement was going on some of the jurists and the Members of the Opposition opposed introduction of chapter on the Fundamental Rights. This was a little surprising because the Constitutions of several nations have incorporated a clause on fundamental duties. What is the nature of such fundamental duties?

A brief study of other nations' constitutions such as those of U.S.S.R., the Republic of China, Federal Republic of Germany, Japan, the Republic of Czechoslovakia, Spain, Venezuela, Italy, Federal Peoples' Republic of Yugoslavia, Republic of Argentina, Finland, Romania, Korea, the Kingdom of Nepal, Republic of Albania, Egypt and the Republic of Guatemala is given.

The founding Fathers of the Constitution did not think it necessary to include a specific chapter on Fundamental Duties, at the time of framing the Constitution, perhaps because they assumed that rights follow obligations of citizens in any civilised society. They thought that every citizen would cherish and follow the noble ideals which inspired our struggle for freedom. They believed that every citizen shall uphold the respect and sovereignty, unity and integrity of India. They thought that it was implicitly binding on every citizen to perform his duties towards his country, overlooking religious, linguistic, regional and sectional diversities. After working the Constitution for 27 years events have proved that statutory emphasis on duties should balance the provision on rights. We cannot think of a citizen, leave alone a society or a nation, where rights are enthroned as sacrosanct and little is done to balance them with duties.

The new chapter in our Constitution enumerates 10 Fundamental Duties. After making a broad comparative study of several Constitutions, it will be found that although some of the duties are found in the other Constitutions, some of the important duties are not included in the constitution of other countries It may be so, because the problems of our country are different. The problems arising out of the religious, linguistic and sectional diversity, composite culture, resulting from different religions prevailing in the country are of a special nature and need to be tackled if we have to produce unity and secularism. India is an economically underdeveloped country and the problem of poverty is closely linked with scientific advancement.

After going through Constitutions of most of the nations I find that many duties prescribed for the citizens are similar or common. Duty to defend the country and undergo military training; duty to work in accordance with his abilities and to contribute by his work to the common weal; duty to respect the religion of others; duty to pay the taxes as provided by law etc. It must be noted that some of the countries including Venezuela have prescribed the duties not only for their citizens but also foreigners living in these countries.

It will be interesting to compare the duties prescribed in these constitutions with those incorporated in our own constitution.

U.S.S.R.

Articles 130 and 131 of the Constitution of U.S.S.R. specifica[lly] refer to fundamental duties

Article 130 states that it is the du[ty] of every citizen of the U.S.S.R. [to] abide by the Constitution to obse[rve] the laws, to maintain labour disc[ip]line, to honestly perform pub[lic] duties and to respect rules of [so]cialist intercourse. Article 131 sta[tes] that it is the duty of every citiz[en] of the U.S.S.R. to safeguard a[nd] fortify public socialist proper[ty] as the sacred and inviolable found[a]tion of the Soviet System, as t[he] source of wealth and might of t[he] country, as the source of prosperi[ty] and culture of all working peop[le]. Persons committing offences agai[nst] public socialist property are enemi[es] of the people.

Peoples' Republic of China

The Constitution of the Peop[les'] Republic of China specifically ref[ers] to the Fundamental Rights a[nd] duties of the citizen in Chapter [...] of the said Constitution. Artic[les] 100 to 103 refer to fundamen[tal] duties of the citizens.

Article 100 states that the citize[ns] of the Peoples' Republic of Chi[na] must abide by the Constitution a[nd] the law, and observe labour disc[ip]line, observe public order and r[es]pect public morality. Article 1[01] states that the public property of [the] Peoples' Republic of China is sac[red] and inviolable. It is the duty [of] every citizen to take care of a[nd] protect the public property. Art[icle] 102 states that the citizens of Peop[les'] Republic of China have the duty [to] pay taxes according to law. Art

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103 states that it is the responsibility of every responsible citizen of the Republic of China to defend the motherland, and that it is the moral duty of the citizen of Peoples, Republic of China to perform military service.

Federal Republic of Germany

Under the Constitution of the Federal Republic of Germany, the following Articles refer to Fundamental Duties.

"Men who have attained the age of eighteen years may be required to serve in the Armed Forces in the Federal Border or guard or in a Civil Defence Organization etc."

Article 14 refers to right of property, right of inheritance, expropriations *Art.* 14(1) refers to property and the right of inheritance guaranteed. Their contents and limits shall be determined by the laws *Art.* 14(2) Property imposes duties. Its use should also serve the public weal.

Expropriation shall be permitted only in the public weal, and the compensation determined by establishing an equitable balance between the public interest of those affected. In case of dispute regarding the amount of compensation recourse may be had to the ordinary courts.

Art. 15 refers to socialisation, Article 18 refers to forfeiture of basic rights, and Art. 19 refers to restriction of basic rights.

Constitution of Japan

Chapter III of the Constutution refers to the Rights and Duties Following are some of the important duties under the constutution of Japan:

Art. 12 states that the freedom and rights guaranteed to the people by this Constitution shall be maintained by the constant endeavour of the people who shall refrain from any abuse of these freedoms and rights and shall always be responsible for utilizing them for the public welfare.

Art. 25 All people shall have the right to maintain the minimum standards of wholesome conduct and culture. In all spheres of life, the State shall use its endeavours for the promotion and extension of social welfare and security and of public health. *Art.* 27 All people shall have the right and the obligation to work. Standards of wages, hours, rest, and other working conditions shall be fixed by law. Children shall not be exploited. *Art* 30 The People shall be liable to taxation as provided by law.

Republic of Czechoslovak

Under the Czechoslovak Constitution, following are some of the important duties.

Sec. 30 (1) It is the duty of every citizen to be loyal to the Czechoslovak Republic, to uphold the Constitution and the laws and in all his actions to be sensible of the interests of the State.

(2) In particular it is the patriotic duty of every citizen to assist in the maintenance and furtherance of the national property and to guard against its being diminished or damaged.

Sec. 31 It is the duty of citizen to discharge all public functions to which they have been called by the people conscientiously and honestly in the spirit of the People's Democratic Order *Sec.* 32 It is the duty of every citizen to work in accordance with his abilities and to contribute by his work to the common weal *Sec* 33 Taxes and public duties may be levied only on the basis of the law. Likewise the public authority may demand personal services only on the basis of the law *Sec* 34 (1) The defence of the State and of the People's Democratic Order is the supreme duty of every citizen. Service in the People's democratic army of the Czechoslovak Republic is the supreme honour for every citizen

(2) It is the duty of every citizen to undergo military training to take part in military service, and to obey any call for the defence of the State.

(3) For the purpose of the defence of the State and for the preparation of such defence, cooperation and material contributions may be demanded from, and restrictions and material services imposed upon, every one.

(4) Public authorities and executive offices shall in the exercise of their official function, by virtue of their authority take care also of the interests of the defence of the State.

Sec. 36 – (1) It is the duty of all public authorities to act in the discharge of their office or duty in accordance with the law and with the principles of the People's Democratic Order.

(2) If any public functionary offends against this duty he shall be liable to punishment according to law.

Spain

Following are the duties under the Spanish Constitutions:

Art. 2 – Spaniards owe faithful service to their country, loyalty to the Chief of State and obedience to its laws *Art.* 6 – The profession and practice of the Catholic religion, which is that of the Spanish State, will enjoy official protection.

Nobody will be molested because of his religious beliefs or the private exercise of his cult. No external ceremonies or manifestations will be permitted except those of the Catholic religion. *Art.* 7 – It is a title of honour for Spaniards to serve in the armed force of their country

There are other duties such as contribution to the maintenance of charges, duty to occupy any socially useful activities etc.

Venezuela

Art. 20 - states that all Venezuelans have the duty to defend their country, to fulfill and obey the Constitution and the laws of the Republic, as well as the decrees, orders, and resolutions which, in accordance with their powers, the public authorities may dictate They shall not serve against Venezuela in any event, or against her allies in case of armed international conflict, and, should they do so, they shall be considered as traitors to the Nation.

All foreigners are obliged to obey the laws in the same manner required of Venezuelans while they reside in the territory of the Republic.

Art. 21 – states that without prejudice to the previous international agreements, all foreigners in Venezuela shall have the duties and the rights which this Constitution and the laws grant them, however, neither their rights nor their duties can be greater than those of Venezuelans.

Republic of Italy

Work is both a duty and a right Every individual must contribute to the progress of society by means of work. It is the duty of the State to obtain the incorporation of Italians into the national life.

Some of the important duties:

Art. 2 – states that the Republic acknowledges and guarantees the inviolable rights of man both as an individual and in the social organisations where his personality is developed and requires the fulfilment of the essential duties of political, economic, and social solidarity. *Art.* 4 – states that the Republic recognizes to all citizens the right of work and promotes conditions to

render this right effectively.

Each citizen has the duty to exercise, in conformity with his own ability and choice, an activity or function contributing to the material or spiritual development of society.

There are other duties such as the duty of the parents to support, teach and educate their children, even if born out of wedlock, to defend the country etc.

Republic of Yugoslavia

Art. 22 – of the Constitution states that the citizens of the Federal Peoplels Republic of Yugoslavia are bound to comply with the Constitution and laws. *Art.* 32 – It is the duty of every citizen to work according to his abilities; he who does not contribute to the community cannot expect to receive from it.

Art. 33 – All public offices are equally accessible to all citizens in accordance with the conditions of the law.

It is the duty of every citizen to perform conscientiously the public duties to which he has been elected or which are entrusted to him. *Art.* 34 – The defence of the fatherland is the supreme duty and honour of every citizen.

High treason is the greatest crime towards the people Military service is universal for all citizens There are also other important duties such as payment of taxes and participation of the people and the workers' in nation-building tasks

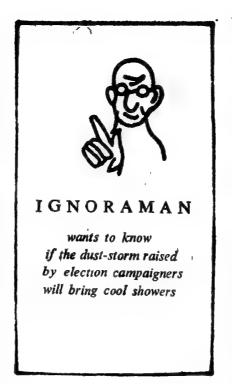
The Republic of Argentina

Art 32 – Every Argentina citizen is obliged to arm himself in defence of the country and of this Constitution, in accordance with whatever laws Congress shall enact for the purpose and the decrees of the national executive power

Art 33 – Treason against the Nation shall consist only in taking up arms against her, or in aligning with her enemies, giving them aid and comfort. Congress shall declare, by a special law, the punishment of his crime, but the penalty for treason shall apply only to the offender and no infamy therefrom shall affect his relatives, regardless of the degree of relationship.

Finland

Art. 75 – Every Finnish citizen must take part in the defence of the country or assist therein as prescribed by law.

Every conscript, unless he otherwise desires, shall if possible be enrolled in a military unit the members of which speak his own mother tongue (Finnish or Swedish), and shall in such unit receive his instruction in that language. Finnish shall be the language of command of the armed force.

Peoples Republic of Romania

The defence of their country is a duty of honour for all citizens. Military service is obligatory for all citizens according to the law.

High treason – violating the oath of allegiance, entering the service of the enemy, impairing the military power of the State – constitutes the gravest crime against the people and is punishable with all the severity of the law.

The Republic of Korea

Art. 17 – States that all citizens shall have the right and duty to work. The standards of the conditions of labour shall be determined by law. Special protection shall be extended to the labour of women and children *Art.* 29 – All citizens shall have the duty to pay taxes in accordance with the provisions of law. *Art* 30 – All citizens have the duty to defend the national territory in accordance with the provisions of law.

There are other countries such as Nepal, the People's Republic of Albania, Egypt, Republic of Guatemala, who have included similar fundamental duties in their Constitution. □

New Banking Policy

contd. from Page 17

Programme and *Retail Banking*. The banker today must have knowledge, imagination, sound thinking, initiative and a spirit of heroism.

15 *Agents of Change* · Entire fabric of banking industry is on the threshold of change. Banks have to manage for growth to ensure growth with social justice. It is no wonder therefore that management of change, particularly to bring about desired social change is a really challenging task, the success of which largely depends upon the attitude of employees. Banks have been called upon to undertake an accelerated expansion of their activities, both geographically and functionally. These changes have altered the very role of banking industry. The concern of the industry has been as to how best to organize and perform varied tasks and how best to render myriad services to its over increasing clientele.

No doubt there is a gap between expectations and performance. People expect miracles from the banking system. This is partly due to the misinterpretation of the role of banks by public There is need for educating public opinion on right lines. Banks need not be dismayed by brickbats—none the less be swayed by pressures from different quarters

To conclude it may not be out of place to quote the thought provoking message of Smt. Indira Gandhi emphasising the role of bankers as "*Agents of Change*".

"OUR BANKS MUST ADOPT A NEW ATTITUDE, BEFRIENDING THE POOR AND TAKING THE BENEFITS OF PROGRESS TO THE RURAL AREAS. I HOPE THAT EMPLOYEES OF NATIONALISED BANKS WILL AT ALL TIMES SHOW, COURTESY AND COMPETENCE, AND BECOME AGENTS OF CHANGE AND DEVELOPMENT. □

DUTIES MUST PRECEDE RIGHTS

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IN SHEEP'S CLOTHING

ERNEST FEDER

Capital invested by transnationals to intensify land use leads to the impoverishment of developing countries through the retransfer of their resources.

THE ELIMINATION of the remnants of peasant agriculture and the depletion of resources at terrifying speed with unpredictable results for future food supplies—that is the balance sheet I draw up for the overseas activities of the transnational corporations of the industrial nations operating in Third World agricultures.

My balance sheet does not give with how agribusiness operating on a worldwide scale sees its function with respect to "development". A few years ago, public opinion was shocked when a president of General Motors declared that what is good for his corporation is food for the United States. Today the same argument is put forward by agribusiness. Henry J. Heinz II of the giant food concern Heinz Co., chairman of the U.S Agribusiness Council (a non-profit organisation "dedicated to bringing the resources and capabilities of agribusiness firms to bear on economic development"), wrote that agribusiness "attempts to wed developing country needs to agribusiness interests and capabilities."[1] It pretends that it alone is capable, qualified and has sufficient expertise to develop Third World agricultures.[2] But what are "developing country needs"? The theory that the welfare of society is identifiable with the profit-earning capacity and power of business firms, or that the benefits of economic activities accruing to corporations will trickle down to the underprivileged masses of the Third World is totally discredited by the historical processes of capitalist expansion. Even McNamara, the world's foremost banker and financier, conceded in Nairobi in 1973 that "the data suggest that the decade of rapid growth has been accompanied by greater maldistribution of income in many developing countries and that the problem is not severe in the countryside." However, he failed to mention what we all know; during this same decade, the growth and profits of international agribusiness firms were at record levels. It is false that only agribusiness is capable of helping developing agricultures. Socialist agricultures with growth rates, production diversification, full employment, higher incomes and security for the peasants and greatly improved diets, all bordering on the spectacular, show that agribusiness capitalist style is not needed.

Ernest Feder has been a professor at the Institute of Social Studies, The Hague, since 1973. Before that, he worked for ten years with ECLA and FAO in Latin America and Sri Lanka. He is also the author of the Rape of the Peasantry, among other works.

The Modernization Process

My dismal balance sheet is the reflection of an apparently highly paradoxical process. A chronic lack of investments and a process of systematic decapitalization causing continuously deteriorating production and diminishing food supplies, offset only partially by the expansion of the farming area, have long afflicted developing agricultures. New investments and technological improvements were urgently needed but could not be expected under their obnoxious land tenure conditions. Since the mid-1960s, an enormous and growing amount of capital and technology has been transferred from the industrial countries. It results in a process of decapitalization that exceeds in extent and speed anything the world has seen. The apparent paradox-needed investments undertaken by transnational corporations and supporting agencies to intensify land uses causing retransfers of resources from developing agricultures to industrial nations greatly in excess of investments—resolves itself easily enough when one knows how agribusiness functions.

Of course agribusiness includes more than private firms engaged in the production, processing, marketing or exporting of agricultural products or in the production, assembly, distribution or imports of inputs. It includes also the supporting activities of national, bilateral, public or private international and multinational financial and technical development agencies directed largely (at times exclusively) towards strengthening the infra-and superstructure for the effective and profitable operations of the former.

The transfer of capital and technology to Third World agricultures goes under the agribusiness title "modernization". The first such large-scale modernization scheme was the green revolution. There is no need to go into this much discussed programme whose alleged purpose was to eradicate hunger, except to point out that what agronomists called naively the "seed-fertilizer package" was in reality the first hard-boiled attempt to expand capitalist agriculture in the Third World's latifundium sector; and that the subsidized worldwide dissemination of "miracle" seeds made no dent whatever in the hungry people's diet. But the predictable failure of miracle seeds to "do their job" of wiping out hunger was anything but a deterrent for increasing agribusiness investments. This alone makes it abundantly clear that the elimination of hunger could not have been the objective. It was not the new seeds that were miraculous, but the extent and speed with which agribusiness entered the food business in the Third World. The green revolution was followed by the modernization of many other agricultural sectors, quite independently of any miracle seeds.

What are the parameters of the capitalist-style modernization process?

Capital investments are now made in farmland itself. They arrive in the form of fixed investments (land purchases, leases, concessions, etc.,)

and allow foreign investors control over the land and its exploitation. (Not all these transactions are traceable because of the use of "strawmen" to hide ownership). Fixed capital allows control overland also in less direct form. One is the so-called production contract system, about which more will be said below; another is the investments made by development agencies in agricultural projects, which allow these agencies some control over land by controlling the performance of the projects. The land-now under direct and indirect control by foreigners is very substantial and steadily increasing, particularly in some "pet" countries, such as Brazil. In addition, capital arrives as operating funds. They usually exceed fixed investments by a large margin, depending on the type of commodity involved. Operating capital puts the finishing touches on control because all production and some marketing phases are determined by it.

Control at all Levels

In addition, fixed and operating capital is transferred into agriculture-related industries and all kinds of necessary and (from the point of view of the Third World) superflous services to control the processing and distribution of the product and the production and distribution of inputs They significantly exceed investments at the farmslevels and tend to snowball, in part because they involve relatively costly constructions (usually of excess capacity because this is a very effective competitive device) and large and generally imported equipment and also because of the growing need to service output and sale of inputs and to repatriate profits. There are quite a few cases where such investments represent, from the point of view of the developing countries, an extraordinary waste of resources Take for example a plant that operates only a few months out of the year to process a highly seasonal product when, through proper planning for diversified production, the investment could serve the year round. Obviously, this is not of particular concern to overseas investors since their investments are amortized in most cases in record time.

The inherent logic of these capital flows is that transfers to one level always accompany, as if by necessity, transfers to other levels. Not infrequently, the source of these capitals is the same, although the flows are of course not unidirectional. Only transfers to all levels provide overseas investors singly or as a group with full control over phases of activities in the modernized sectors of Third World agriculture, and control is one of the objectives Control is a prerequisite for deciding what, where, when, how and how much to produce; and whether, how, when and to what markets to "distribute the output; and how to assure and maximize the repatriation of profits. The more intensive modernization, the greater the control at all levels. There are innumerable and rapidly growing instances of modernized sectors all over the Third World where production and distribution are totally managed by foreign capitalists, and where therefore the decision-making power of local capitalists or governments is reduced to practically zero. Thus the modernized sectors become mere extensions of the agricultures of the industrial countries—new enclaves in the Third World

Transfers of capital are practically always accompanied by technology transfers (including their servicing). Sometimes capital precedes, sometimes it follows technonology A sequential capital-technological package is characteristic of modernization carried out under the aegis of multinationals and allied agencies. So is the sequential technological package because it is part of the inherent logic of the system that one technology transfer generates further transfers. Often this is due to the inherent nature of the technologies. The use for example of a new seed variety that performs best under irrigation must—to be profitable—be followed by irrigation facilities and equipment; larger harvests call for mechanized equipment, and so forth. At other times, it is simply the result of sales pressure of producers, owners or dealers of technologies or extension agents trained in agricultural colleges of industrial nations. It is precisely the combined assault by capital technology that explains the severe and adverse economic, social and political impact of capitalist style modernization on the developing countries.

The Search for Profits

How to explain the forces underlying these processes, which are likely to be highly chaotic and inimical to alround development? Although developing countries have an interest in improving agricultural performance for a variety of reasons (substitute food imports, increase foreign exchange earnings through more exports, etc). the initiative for modernization stems from the capitalists of industrial countries. It is notorious that in the initial stages of the green revolution, for example, modernization had to be practically forced on large landholders and sometimes on governments—by cajoling the former with enormous subsidies and the latter through the promise of financial assistance. Now overseas investors tend to run their own ventures as fully as possible. The major incentive is the search for profits. (Another is the political element; counter-reform) Obviously, input sales are always profitable. But, in contrast to widespread opinion, agricultural ventures too are extremely profitable and even generate superprofits,* most particularly when they are run with full control over all phases beginning from the choice of inputs through the repatriation of profits. A profitable overseas operation, once started, generates enormous pressures for expansion and diversification. Each transfer of capital and technology is a source of new profits Superprofits are the consequence of an obvious—but by the multinationals, never admitted—fact, inputs made available locally are low or superlow cost items In addition, the modernizing sectors monopolize the best land, with actual or potential high yields. And we cannot overload the fact that overseas capital is highly mobile; if production costs threaten to rise, investors can easily pull up stakes and move to new areas or countries where costs are lower, like the notorious "runaway" industries—even considering that it takes more time to pull up stakes in the case of permanent plantations. The very threat by a large international food firm that it would move out is usually enough to obtain concessions so that low costs and optimum profit repatrations can be maintained.

The apostles of agribusiness claim that they are uniquely qualified to transfer to local entrepreneurs and producers the best know how available to them. One said textually. "When a grower signs-a production contract with an international processing-plant he has an ally in his efforts to use the best farm technology"*. The implication is that, as agents to "wed developing country needs to agribusiness interests and capabilities", transnational agribusiness firms would, in due course, transfer the entire bag of production,

processing and marketing knowhow to the developing producers and entrepreneurs; the latter would emerge from their state of underdevelopment and begin making their own decisions with the bag of tools acquired.

This is a far cry from what actually happens. First, agribusiness regards its role of innovator as a permanent function. The foreign investor's and technology transferrers' last intention is to give up this role and attitude incompatible with the proclaimed desire to help developing countries emerge from their unfortunate status. Transfer of knowhow is therefore a transfer *sui generis* and one might even argue that it is not a transfer at all in the sense of the word. Secondly, international agribusiness firms do not always transfer, or transfer only a portion of the best farm processing or other technology, and they practically never transfer marketing knowhow. The quantity or quality of the technology is likely to be decided by three overriding factors the existence or search for monopoly power, the need to minimize costs and maximize repatriation of profits and, at times, the need to face political issues. These factors operate singly or in combination, although perhaps not in the same direction. Agribusiness firms find themselves by and large in an unusual position because they practically always occupy a monopoly position or achieve it quickly by driving out local ventures. If they already have a monopoly status, there is no overriding need to use the best or all the best knowhow. This is pure and simple textbook economics. To achieve it, they may use it, but deny it to competitors.

Unequal Exchange

Equally, if not more, important is the cost factor. Here again we must keep in mind the unusual condition encountered: the abundance and even overabundance of cheap land, water and labour. These make it unnecessary and in many instances profitable to transfer the best or all the knowhow which, one must insist, is always in the bag of the transferrable knowhow of international agribusiness firms. Only the knowhow that will not unduly raise costs and reduce the repatriation of profits will be transferred. This is not a very original discovery, but few realize the consequences it has on the use of local resources and particularly on people.

Take an international lumber company from a country with a long tradition of high-level forest management, including systematic reforestation, having a concession in a Third World forest in which many communities make their living from exploiting the timber. There is an abundant labour force, and increased forest exploitation could offer many new employment opportunities. But what happens? The company brings in an enormous pack of the most modern equipment sufficient to cut trees at speeds never seen before in the area and haul it out with modern transportation. Here the overwhelming need is to keep the local force with rights to the land and income from it away —usually forcibly and ruthlessly. The company destroys the forest and the people, but undertakes no reforestation, since this would increase the costs of operation and no one obliges it to do so. The governments are powerless or are guided by the same shortsighted profit motive as the multinational destroyers of forests or have themselves no resources to undertake the reforestation at speeds equivalent to the destruction.

Once the forest is gone, the company will move to the next forest. This process now occurs on a vast scale throughout the Third World. The same also occurs on an immense scale in the livestock industry with respect to grazing lands.

Or take an international fruit or vegetable processing plant, operating in a fertile irrigated valley. It employs the production contract system much vaunted by agribusiness, whereby the plant "exchanges" the growers' output in return for credit and inputs. If exchange there is, it is highly unequal: credit and inputs tie producers to the plant in exactly the same manner as credit and company stores tie rural labour to the employer-patron The plant fulfils the function of a seller of (or agent for) inputs on which it makes a handsome profit. This is incompatible with its proclaimed role of "ally of the growers in their efforts to use the best farm technology." The search for profits is incompatible with serving producers with inputs best adapted to their needs rather than those of the agribusiness firms, as widespread complaints of producers prove. In the process, two developments take place. Land and water are exploited maximally without regard to fertility, soil infestation, good texture or proper drainage. That is not the plant's worry, it needs to make no contribution whatever to maintain the capital base of its operation; it will quickly shift its operation to new cheap and abundant fertile land where the process starts all over again.

At the same time, the plant destroys the remnants of peasant agriculture, favouring large and gradually eliminating small producers in obedience to the (false) theory that large private holdings are synonymous with efficient operations. The already significant socio-economic inequalities are aggravated; landlessness and poverty increase. If a contribution is made to rural or factory employment, it will be at rock-bottom wage levels and seasonal—the least desirable employment, and the most exploitative.

No Percentage

In their inordinate rush to "clean out" deliberately the best resources as long as the going is good and earn the super profits not earnable any more in the industrial countries, international concerns accomplish what the traditional estate owners in the developing agricultures were unable to do; ruin agricultural capabilities not within five, eight or twelve generations, but within one or two. Production in the modernized sectors will undoubtedly increase—until all the best resources have been exhausted—but not for the benefit of the rapidly increasing hungry people. As the green revolution proves, for agribusiness firms with monopoly over food and fibre there is, in the prevailing system, no percentage but in selling to those who have purchasing power. And to round off the dismal picture: modernization is accompanied locally by highly unsettling economic conditions of which erratic markets are the most outstanding, and by the inability of local governments to execute plans to preserve the basis of the livelihood of future Third World generations. The more resources are destroyed, the greater the future dependence on industrial countries. □

1. See his Introductory Note in James E. Austin, Agribusiness in Latin America, 1972.

2. See Lester Brown, Seeds of Change, 1970

*See Barnet and Muller, Global Beach, 1975, p. 17.

*David Morrissy, Agricultural Modernisation through Production Contracting, 1975, p. 66.

A VILLAGE COUNCIL—10TH CENTURY

THE REMARKABLE continuity of the cultural traditions and social institutions among Indians despite vicissitudes in the political fortunes of great ruling dynasties is to be traced to the highly organised community life in every village. This has been generally true for all ages not excluding the periods when Muslim Kings were in power. Even in its truncated form after the British came with many of its ancient privileges curtailed if not deprived, the village *panchayat* continued to play role in the maintenance of public utilities such as tanks, wells and roads and traditional disciplines within and between the castes.

In ancient days, however, every village council (by whatever name it was called such as *Sabha, Mahasabha, Panchayat* etc.) was a representative body to which men of proved integrity, wisdom and sense of service were selected. In South India in particular and more especially the Tamil country, these village councils played a uniformly significant role since the third century B.C. They were, as it were, the grass roots of public administration and no king, however, powerful or autocratic dared interfere in their functioning except when such interference manifestly strengthened their working.

The Sabha performed a variety of functions concerning the economic, social and cultural life of the community. It maintained records of properties, public and private; administered endowments for upkeep of tanks, wells, hospitals and schools; it regulated services in the temples; it functioned as a bank and advanced money to cultivators; maintained village roads; arbitrated over disputes; regulated retail trade; imposed and collected taxes; and occasionally even sat in judgement over what would now be considered as private morals. The effective functioning of these councils naturally depended on the personal integrity of those who composed them. Hence very stringent qualifications were prescribed before a person was elected to the Sabha.

The following inscription of the 10th century from Uttaramerur (150 miles south-west of Madras) is one of the most unique documents of its kind and gives a picture of elections to a village council in the Chola Kingdom. The underlying principle was not the adults' vote but the proven integrity of the candidate.

A Page from History

The Uttaramerur Inscription

Hail! Prosperity! On the sixteenth day of the fourteenth year of king Parakesarivarman* who captured Madura—we, the members of the Sabha of Uttarameru-caturvedimangalam in its own subdivision (*kuru*) of Kaliyurkottam,—a gracious letter of His Majesty, our Lord Sri Viranarayana sri Parantakadeva Sri Parakesarivarma having been received and shown to us, and in accordance with ((that) letter Karanjai Kondaya Kramavittabhattan *alias* Somasiperuman of Sri Vanganagar in Purangarambainadu of the Solanadu, sitting (with us) by order, — (we) made the following settlement with a view to appointing as *variyam* (committees), every year from this year onwards, (the following) (viz), the ***annual committee, garden committee*** and ***tank committee.***

There being thirty *kudumbus* (wards), in (each of these) thirty wards, the people of the ward concerned shall assemble, and shall write on pot-tickets (the names of) those who own more than one-fourth *nilam* of taxable land, reside in houses built on their own sites, are below seventy and above thirty-five years of age, know the *Mantrabrahmana* and possess experience of teaching it.

Though owning only an eight o[f] a nilam, if a person is competen[t] in one Veda and possesses experienc[e] of expounding one of the four bhasy[as] as he shall also have his nam[e] written on the pot-ticket and pu[t] (into the pot).

Even among these, only person[s] who are proficient in (general) affai[rs] and conform to proper condu[ct] (*assaram*) shall be taken. Those wh[o] have material and spiritual purit[y] and have not done *variyam* th[e] side of three years shall be chosen.

Anyone who has done any *variya[m]* (before) and failed to show account[s] and his relatives as specified herei[n] shall not have their names writte[n] on pot-tickets and put (into the po[t]) —(viz.) the sons of the younger an[d] elder sisters of his mother; the so[ns] of his paternal aunt and matern[al] uncle; the brother of his father; h[is] own brother; his father-in-law, the brother of his wife; the husban[d] of his sister; the sons of his siste[r]; the son-in-law who has married h[is] daughter; his father and his son.

Those against whom incest or th[e] first four of the five great sins a[re] recorded and all their relations a[s] specified herein before shall not als[o] have their names written on po[t]-tickets and put (into the pot).

Those who have fallen by asso-ciation (with sinners) shall n[ot] have their names written on po[t]-tickets till after they perform e[x]-piation.

Those who are violent shall al[so] not have their names written o[n] pot-tickets and put (into the po[t]). Those who have stolen others' pr[o]-perty shall not also have their nam[es] written on pot-tickets and put (in[to] the pot).

Those who, after partaking of a[ny] forbidden dish, have become pu[re] by performing the ghee expiati[on] (?), shall not also, to the end of th[eir] lives, have their names writt[en] on pot-tickets for the committe[es] to be put (into the pot).

Those who have become pu[re] after performing expiation for si[n], those who have become pure af[ter] performing expiation for havi[ng] turned enemies of the village (*gram[a]-kantaka*), and those who have [be]-come pure after performing exp[ia]-tion for incest—all these pers[ons] shall not, to the end of their liv[es], have their names written on p[ot]-tickets for committees to be [put] (into the pot).

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*King Parantaka I

Excluding all these persons specified above, names shall be written for pot-tickets in all the thirty wards; and in these twelve *seris*, separate covering tickets (*vayaolai*) shall be attached for each separate ward, and (the tickets of) the thirty wards shall be separately bundled and put (into the pot).

When pot-tickets are (to be drawn, the members of the *Mahasabha*, young and old, shall be assembled at a full meating and the temple prisets (*nambimar*) who happen to be in town on the day shall, without any conception, be caused to be seated in the inner *mandapa* (pavilion) in the *Mahasabha*; among the temple priests, an old priest shall stand up and, looking upwards, shall hold the pot so as to be seen by all people, (the bundle of) one ward shall be caused to be taken out by a boy who cannot see the difference (between things) even by day, and it shall be put into another pot and shaken, and one ticket shall be drawn out of that pot and placed in the hands of the arbitrator (*madhyasta*)

When the *madhyastha* receives the ticket thus given, he shall receive it in the palm of his hand with his five figures spread out. And he shall read (out) the ticket he has so received. The ticket so read shall be read also by all the temple priests in the inner pavilion The name so read shall be written down this manner, one name shall be obtained from each of the thirty wards

Out of the thirty names so got, those who have served on the garden committee and the tank committee and those who are advanced in earning or in age shall form the annual committee.

Of the rest, twelve shall form the garden committee. The remaining six shall form the tank committee. These two committees shall be formed by showing the *kurai* (?) The members of the three kinds of committees that perform *variyam* shall do (their duties) for three hundred and sixty days and then retire.

Anyone who is found guilty among those who are serving on the committee shall be removed (forthwith).

(For) the committees to be appointed after the retirement of these, the members (*variyar*) who super intend charities in the twelve *seris* shall themselves cause the the assembly to be convened by the *madhyasthas*. The committees shall be appointed only by drawing pot-tickets in accordance with this deed of settlement.

For the *pancavara* committee and the gold committee, names shall be written for pot-tickets in all the thirty wards, and thirty bundles with covering tickets shall be put in, and thirty tifkets drawn, from which again twelve names shall be drawn.

Of these twelve so drawn, six shall form the gold committee, and six the *pancavara* committee.

When drawing pot-tickets in the following year for these committees, the karai shall be drawn only among the wards that remain after concluding those that served on the committees before (on the preceding year).

Those who rode on assess, and those who forged documents shall not have their names written on pot-tickets to be put (into the pot).

Among *madhyasthas*, only a person possessing material purity (arthasaucam or free from charges of bribery or cheating) shall write the accounts.

Until after a person who maintained accounts submits accounts along with the accounts-committee of the *Sabha* and is declared pure, he shall not enter on (maintaining) other accounts

A person who has been maintaining accounts shall himself submit his accounts; other accountants shall not enter and close them.

We, the members of the assembly of Uttarameru-caturvedimangalam —having been shown the gracious royal letter received from the lord of the gods, the emperor, the lover of sholars, the wrestler with elephants, the crest-jewel among heroes, the emulator of the Kalpeka, Sri Parakesarivarma; Karanjai Kondayakarama-vitta Bhatta ;*alias* Sonsasiperuman of Sri Vanganagar in Purangarembei-nadu of the Solanadu, sitting with us by order and causing us to make this settlement (we) made this settlement for the prosperity of our village and for the destruction of the wicked and the increase of the rest, viz, that in this manner, from this year as long as the sun and the moon last, we shall always appoint only pot-ticket-committees.

I, the madhyastha, Kadadippottan Sivakkuri Rajamallamangalapiryan, wrote this settlement in this wise to the doctation of the members (perumakkai) sitting in the assembly (kuriyullirundu).

Taken from Studies in Chola History and Administration by K.A. Nilakantha Sastry — University of Madras 1932.

A Revolution Without Tears

Economic Revolution in India *Edited by S.D Punekar and Others; Himalaya Publishing House, Bombay,* 1977, *Pages xvi+P587; Price Rs* 55.

THE FIRST half of the year 1975 was marked both by intense political turmoil and acute economic unrest To counteract this, the President of India declared, on June 26 Emergency on the Political front, whereas the Prime Minister announced on July 1 the 20 Point Programme for Economic Discipline. Both the political and economic declarations have brought on the whole some salutary effect in creating a congenial climate to enable the Government of India to announce the Lok Sabha elections in March 1977

During the last year and a half, the 20 Point Programme has received considerable publicity. The bold and imaginative measures suggested to solve the numerous economic problems facing the country, the immense economic sweep of the Programme itself and the various types of instruments, legal or otherwise, created or activated for adequate implementation of the Programme make it desirable to have a deep study of the economic problems involved and of the measures taken or proposed to be taken towards their solution The book under review seems to be the first serious attempt to fill this gap

The 20 Point Economic Programme was followed within a few months by the 5 Point Social Programme of the Youth Congress. The Indian National Congress and subsequently the Government accepted both the programmes for the socio-economic development of the nation. It is difficult to demarcate the social and the economic elements separately in both the programmes. The 20 Point Programme, for example. is not merely economic, it has its social aspects too For example, stabilisation of the price line has both economic and social effects Similarly, the various points like the land for the landless, rural housing, abolition of bondage, minimum wages in agriculture, socialisation of urban land and action against social enemies are meant not only for betterment of economic conditions but also for elimination of social exploitation and protection of the downtrodden. Though the 5 Point Programme is primarily of social importance, points relating to family planning, literacy, anti-dowry and removal of caste barriers have some impact on the economic development of the country

Books

The book is a useful publication of topical importance, giving up-to-date facts and figures on the 25 points, which, if properly implemented, would usher in a new era of socio-economic development The 42 articles, contributed by 38 experts, present a panoramic view of important social and economic problems, which demand urgent attention Point by point, each topic has been discussed, beginning with a short history of the problem involved, stating the proposal made by the Programme regarding the solution to the problem, explaining the existing state of progress with facts and figures, indicating the nature of changes being brought about by the implementation of the Programme and evaluating the work done so far: suggestions have also been made for better and speedier implementation of the Programme. In short, the book is a critical evaluation of the 20 + 5 points of the two programmes A short article on "National Fitness". published at the end, may be considered as the 26th point.

Any book on a dynamic field, as envisaged by the two programmes, cannot be a final word. because so many changes and that too at a rapid speed are being brought about by the implementation of the various points. To keep up with the times the book would have to be revised in subsequent editions At present, the data are up to the end of October 1976 The book would also require modifications after considering the viewpoints of constructive critics

The Publishers and the Editors of this volume deserve thanks for completing a great task, whose results would be of immense utility to all those interested in the social and economic development of India

(Miss) Kalpana Vaidya

Employment-Oriented Growth

Industrialisation and Employment *by Dr M.M Mehta; Popular Prakashan Bombay* 1976: *Pages* 128; *Rs,* 40/-

WHILE ADMITTING that industrialization is sine qua non of modern society, Gandhiji imposed certain formidable conditions on it. And one of them was that industrialization should not crunch employment opportunities This is the theme of Dr Mehta's study It consists of four chapters which together examine the extent and nature of the impact of industrialization on employment with special reference to the underdeveloped and developing countries of Asia and the Far East

The first chapter analyses global trends in the growth of manufacturing output and employment It is revealed that manufacturing output has grown at a faster pace than manufacturing employment. And that the shift in the pattern of output and employment from light industries in favour of heavy manufacturing industries has proved to be detrimental to employment opportunities Being capital intensive in character the heavy industries lack the capacity to generate more employment The author points out that these trends are reflected more prominently in the countries of Asian region, and is lihely to exert a decisive influence on the current and future size, rate and growth of industrial employment

An exploratory attempt has been made in the next two chapters to examine the prevailing structure in manufacturing employment in various countries of ECAFE (now ESCAP) region and the relative efficiency of labour and capital-intensive industries in terms of costs, productivity, profits etc. The study has found that in those countries which are still in the embryonic stages of industrialisation viz., Burma

Indonesia, Thailand, the light industries account for nearly 80 per cent of manufacturing employment. In an industrially advanced country like Japan the share of the different industries in manufacturing employment is more evenly spread. The study also identifies some of the labour-intensive industries having the potential of securing reinforceable increases in output and employment. The concepts of 'labour-intensity' and 'capital-intensity' has been touched upon

It has been argued that labour-intensive or capital light production is incompatible with economic growth and profitability and that capital-intensive production could promote a more rapid rate of growth, larger output and employment. However, the author says that the co-existence of labour intensive with capital-intensive industries and earning profit adequate to keep them in business is indicative of the advantages of a labour-intensive industry. Unfortunately this vulnerable hypothesis is not elaborated further

The study envisages for the developing countries, with deficiency of capital and abundant manpower, a pattern of industrialisation that would provide more employment, "and by reducing the needs of supporting the unemployed may increase saving through external economy"

After diagnosis comes the remedy in the final chapter where the blueprint of an employment-oriented industrial strategy is put forward It includes the following: -

(a) Maximum utilization of production capacity in manufacturing industries.
(b) Reduction of capital-intensive industries through selection of industries offering the largest employment potential per unit of capital invested.
(c) Choice of production techniques which are capital saving and labour-intensive in character, and lastly
(d) promotion of small scale and cottage industries that could be dispersed in rural areas.

Entrepreneurs in the developing countries of Asia will find useful suggestions about the type of industries that could be set up (according to the natural resource endowments) in rural areas which are the roots of unemployment.

Nearly half the book is filled up with statistical data which, though laboriously collected, comes in the way of a more vigorous empirical approach to the problem of the impact of industrialisation on employment

—**R. Muralidhar**

Science and Development

Science and Development *by B K Nayar; Orient Longman; Pages 226, Price Rs 30.*

THIS COMPILATION of essays on science and development is dedicated to Mr C. Subramaniam on the occasion of his 65th Birthday As Minister-in-Charge of Steel and Heavy Industries, he took steps for improving the working of several units. However, his name is also connected with the introduction of high-yielding varieties of seeds which led to the green revolution Dr Norman E Borlaug, progenitor of the Green Revolution wrote, "The vision and influence of Mr. Subramaniam in bringing about agricultural change, and in the very necessary political decisions needed to make the new approach effective should never be underemphasised"

This collection of Papers by several experts in their fields present a vivid and critical picture of development in key areas of science, technology and education. The subjects that have been discussed are high-yielding crop varieties, Science and Technology Plan, Nuclear Energy, Problems of Education, and India's aquatic, other natural resources, etc.

The opening essay, "High-yielding crop varieties" by M.S. Swaminathan makes thought-provoking reading. The author rightly says that increasing involvement of the farming community in preparation and implementation of action plans may alone help to convert a small government programme into a mass movement Some essays fail to arouse the reader's interest. For example Rahman's discussion of "General Value System and Culture Manifestation" tends to be too abstract and confusing

"Some Problems on Education" by D S Kothari makes interesting reading Dr Kothari rightly says, "Knowledge has placed in man's hands unprecedented power. But what about wisdom? In the nuclear age, there is and can be no way to resolve conflicts, big or small, national or international, except on the basis of knowledge, cooperation, and understanding The future belongs to knowledge and Ahimsa".

Other interesting Papers are Atomic Energy by H.N. Sethna, Consequences of the Import of Technology by Nag Chaudari, Natural resources and their Exploitation by Hari Narain. Incidentally the latter is an extremely well written piece. According to Hari Narain, "With greater exploitation and management efforts employing larger number of our qualified, unemployed graduates, conservation policies in the light of experiences of advanced countries, appropriate technologies to suit our resources and for recycling and substitution, India can march ahead with greater confidence to meet the challenges of the future".

Although some of the articles are well written, the book leaves the reader disappointed The book would have gained immensely had there been an introduction at the beginning on the role of science and development by a famous writer. Inclusion of subjects like intermediate technology, role of mass media in disseminating scientific knowledge and information, higher education, would have added to the value of the book. Viewed in this light, I think the editor has lost a good opportunity of producing a book of interest and relevance.

—**Nitish S. Rele**

Development Notes

New Delhi. In-plant training is also provided to the entrepreneurs at various Government Quality Marking Centres and Industrial Development Centres.

The educated unemployed are granted major loans by financial institutions of the State Government. In addition, 10 per cent of the cost of the project is provided as seed-money at the rate of 4 per cent per annum interest.

Paper from Indigenous Materials

Some National Laboratories of the Council of Scientific and Industrial Research have developed the know-how for obtaining industrial grade pulp and paper from Indian plants which promise to enable India produce all the industrial grade pulp and paper she needs.

Pulp from plant cellulose is the basic raw material for synthetic fibres, rayon and cellophane industry

The present production of viscose yarn and staple fibre in India is about 110,000 tonnes per annum The current production of the pulp is, however, 55 to 60 thousand tonnes annually. Nearly 60 per cent of requirement of pulp is still met by imports

The National Chemical Laboratory, Poona has developed processes for producing rayon grade pulp from eucalyptus, and from three hard wood trees of Bastar forest. The know-how for rayon grade pulp from eucalyptus chips has been tried out on pilot plant scale and the cost comes to about Rs. 1746 per tonne

Similarly, various kinds of papers whose manufacturing technology is a closely guarded secret of paper manufacturers in foreign countries has been developed by some National Laboratory of C S.IR.

Steps to End Rural Indebtedness

The Rajasthan Government has taken some "concrete steps" to free rural people from the huge debt liabilities which a survey conducted by the Reserve Bank of India in 1971-72 estimated at Rs. 280 crore. A study team of the Reserve Bank had estimated that nearly Rs 235 cr. per annum is required in the State as productive credit. Moratorium has been imposed in the State on the debts of small and marginal farmers, agricultural labour and village artisans up to March 1977, and not only the recovery of debts from them, but execution of decrees and hearing of applications have also been stayed.

The debts of marginal farmers and agricultural labour and village artisans having an income up to Rs. 2,400 per annum have been liquidated.

The provision of automatic redemption of mortgage of land has been amended in the Rajasthan Tenancy Act. The mortgaged land will now automatically revert to its owner after the expiry of five years from the date of mortgage without any payment Some 38,000 persons have been benefitted from this provision in law according to official sources.

Punjab—Top Rice Producer

Punjab has emerged as the top rice producing State in the country There has been rapid increase in the rice production as a result of the various steps taken by the State government. Punjab occupied an insignificant position on the rice map of India during 1965-66 (0.20 million tonnes out of 10.6 million tonnes) accounting for about one per cent. Until 1972-73 production was increasing at a slow rate But during the last three years there has been significant improvement in rice production from 9 55 lakh tonnes in 1972-73 to 11 81 lakh tonnes in 1974-75 It further increased to 14.45 lakh tonnes in 1975-76 Now Punjab has exceeded Tamil Nadu and Andhra Pradesh (important rice growing States) in rice yield. This year again, Punjab expects to achieve an all-time high in rice production – 16 to 17 lakhs tonnes Punjab's contribution of rice has also been rising significantly during the past five years During 1971-72, Punjab contributed 6 89 lakh tonnes to the Central pool and last year it rose to 11 52 lakh tonnes Punjab has achieved the highest per hectare yield in the country - 25 53 quintals

New Industrial Complex at Bahadurgarh

The foundation-stone of a new small scale industrial complex at Bahadurgarh in Haryana has been laid.

Bahadurgarh is one of those 17 towns which have been identified for priority development in the National Capital Region Scheme In the new industrial complex, package facilities and concessions will be provided to the entrepreneurs which include, among other benefits, exemption from electricity duty for five years, exemption from octroi for there years, from property tax for ten year sand interest free loan in lieu of inter-state sales tax upto 8 per cent of capital investment for five years.

The Haryana Financial Corporation has plans to open a sub-office in the industrial area itself to invite and speedily process loan applications. The Industries Department has already received nearly seven thousand applications from entrepreneurs for allotment of plots

Malaysian Order for Culcutta

A Culcutta firm has secured a substantial order for cast iron spun pipes from the public works department of Malaysia, against stiff international competition. The order comprising different size of pipes valued at Rs 1.87 million are of British Standard Specifications (BSS 1211) as required by the Malaysian PWD.

India's total export trade of iron or steel tubes and pipes was as much as Rs 70 00 million in 1975-76 Cast iron tubes and pipes alone fetched Rs 35 20 million, rainwater pipes netted Rs. 7.37 million, soil pipes secured Rs. 23.87 million, and other varieties of cast iron pipes and tubes brought in Rs 4 million. The leading customers were the United States, Kenya, Kuwait Delhi, Saudi Arabia, Hong-Kong, Iraq, Iran and Australia.

Widening Industrial Sector

Considerable investment has been made for establishing heavy and basic industries and for strengthening and diversifying the industrial sector in the country. The outlay for Industry and Minerals during the Fifth Plan is Rs 16,660 crore as against Rs 5300 crore in the Fourth Plan. The Central and State Public Sector investments envisaged during the Fifth Plan is Rs 9,660 crore as against Rs 3,050 crore in the Fourth Plan period.

As a result of this heavy investment the production of finished steel increased from about 1 million tonnes in 1950-51 to 5.8 million tonnes in 1975-76 The production of coal increased from 32 8 million tonnes in 1950-51 to nearly 100 million tonnes in 1975-76, cement from 2.7 million tonnes in 1950-51 to 4 6 million tonnes in 1975-76. The production of nitrogenous and phosphatic fertilisers increased from 9,000 tonnes each in 1950-51 to 1535,000 tonnes and 320,000 tonnes respectively during 1975-76.

Package Programme for Educated Unemployed

A Package Programme has been launched by the Industries Department in Haryana to help the educated unemployed in establishing their own industrial units speedily. Reputed consultants have been engaged to prepare profiles of projects of industries which offer scope in the State. This will enable the entrepreneurs to know the economic viability and manufacturing details of these items.

The Department has also arranged a three month entrepreneurship training programme at the Integrated Training Institute, Nilokheri, Small Industries Service Institute, New Delhi, and the Prototype Centre, Okhla,

Scheme for the Landless

The States of Maharashtra, Gujarat, Haryana, Himachal Pradesh, Punjab, Rajasthan, Uttar Pradesh and West Bengal and the Union Territories of Delhi, Chandigarh, Dadar and Nagar Haveli have either completed the work of allotment of house-sites to the rural landless workers or are on the point of doing so. The Government of Gujarat, Haryana, Punjab, Orissa and West Bengal have not stopped with mere allotment of house-sites to the landless families but have also launched an energetic drive to give assistance to the landless families directly as well as through banks, financial institutions etc. to construct their own dwellings on the house-sites allotted to them.

Regd. No. D(D)-152

Limestone Belt Found in Simla

An extensive belt of high grade limestone has been found in the Tons region of Simla district in Himachal Pradesh and the adjoining parts of Dehra Dun district in Uttar Pradesh. This has been revealed by the preliminary investigations carried out in the area by the Geological Survey of India (GSI)

In a part of the area, tentative reserves of about 1020 m. tonnes had been estimated. Actual reserves were likely to be far more. And with such prodigous potentials this area showed the prospects of becoming one of the prominent belt of high grade limestone type in the country. Analytical results of the samples were mostly indicative of a promising quality of limestones.

Houses for the Poor

The Bangalore Development Authority (BDA) has embarked upon an ambitious project to construct about 10,000 houses for the economically weaker sections in the city. Commercial banks operating in the city had come forward to finance the construction of about 1,000 houses under the project. The remaining houses would be financed by the B.D A. with the help of various financial agencies. After a careful study of the problem, B.D.A. had formulated a plan to construct 2.2 square houses at an estimated cost of Rs 5,150 each for the weaker sections. The B D.A would construct these houses and hand them over to site owners providing for repayment of the loan in easy instalments The State Govt. had offered to subsidise the interest charged on these loans

Engineering Unit's Turnover Goes Up

The turn-over of heavy engineering public sector units in the country is expected to be about Rs 8,500 million this year, registering an increase of 13 per cent over the production level achieved last year. These undertakings also in aggregate terms would make a profit of about Rs 580 million during the current year

India had a well-developed base of engineering industries covering a very wide spectrum. As a result of the sustained efforts jointly made by the industry and the Government, the engineering exports last year recorded an all-time high of Rs. 4,000 million. From the position of a net importer of steel in the past India has emerged as a exporter of steel and during the current year, the net foreign exchange earnings from steel are expected to be more than Rs 1000 million.

Indian Banks Do Well Abroad

The performance of the Indian banks abroad has steadily improved over the years. In 1973 their deposits totalled Rs. 261 crores and advances Rs. 219 crores In 1975 deposits rose to Rs 680 crores and advances to Rs. 612 crores. Apart from serving as a channel for inward remittances by overseas Indians, these banks are increasingly assisting trade between India and the country from where they function. Mainly, the Indian banks cater to the needs of the Indians settled abroad. That is why most of the branches are in U.K Hong Kong, Malaysia, Singapore, Mauritius, Kenya, Fiji, Uganda and Nigeria.

From 47 branches in 11 countries in 1972, the number of overseas branches of Indian banks in July 1976 has gone up to 79 in 20 countries. Similarly, of the total bank advances the share of the foreign banks in India had come down from 11 3 per cent in 1969 to 6 3 per cent in 1975.

Trade Pact with Hungary Extended

The long-term trade and payments agreement between India and Hungary, which was due to expire at the end of December, has been extended by one-year under a protocol signed in New Delhi. Under this protocol, Hungary will supply to India special steel products microwave equipment, machine tools, various kinds of machinery including garment making machines, a large range of testing and measuring instruments, components for hydro-power stations and drugs and medicines in bulk and chemicals. India will export to Hungary many non-traditional consumer goods such as tinned fruits, juices and vegetables, cosmetics and toiletries gramophone records including cassets, cotton hosiery and knitwear, garments, batteries, leather goods and stationery articles, besides traditional commodities such as deoiled ground nut cakes, iron ore, jute goods, textiles, tobacco, tea, coffee and mica.

Bonn Bank Loan for IFCI

The Industrial Finance Corporation of India (IFCI) will receive a new loan of DM 15 million (about Rs. 5.66 crores from the Kreditanstal fur-Wiederaufbau, a development bank of the Federal Republic of Germany. An agreement to this effect was signed recently in New Delhi.

With the sanction of the new loan, which is the 15th since 1963, the total KFW loan assistance to IFCI had aggregated DM 117.5 million or Rs 66 98 crore KFW loans have been utilised by a variety of industries of national importance such as synthetic fibres; paper, industrial and other machinery, motor vehicles and parts, metal products and electrical machinery and appliances. A significant feature of DM loans from KFW is that they are fully convertible and can be utilised for financing imports of capital equipment from any country. The import of technical knowhow, machinery drawings, and designs is also permissible.

Milk Products Plant by L & T

Larsen and Toubro Limited (L&T) will be supplying and erecting one of the largest milk product plants to be set up by the private sector. The plant is for the dairy planned to be put up at Jamkhandi in Belgaum district by Dempo Dairy Industries Limited. The plant will have a capacity to handle 130,000 litres of milk per day. Of this, 10,000 litres per day will be processed for distribution in liquid form The rest of the milk will be processed to obtain main products like skimmed and whole milk powder, baby foods and by-products like table butter, white butter, casein and ghee

L&T will design, supply erect and commission the plant and equipment for the project The process involves evaporation and suspended particle drying of milk. L & T will also supply and erect refrigeration plant, boiler plant and HT and LT switchgear The bulk of the plant and equipment for the Dempo Dairy will be fabricated at L & T's Powai Works

Rural Industrial Projects

A phased programme has been chalked out in Haryana aiming at the twin object of the dispersal of industries to the rural areas and to help the traditional rural artisans modernise their crafts About 9000 persons are likely to benefit by the end of Fifth Five Year Plan.

At present, two rural industrial projects are functioning in the State. The Hissar District unit covers Hissar, Bhiwani and Sirsa districts The other unit covers Mahendergarh district.

About 625 small scale industrial units are being assisted under the above projects on the basis of findings of a Techno-Economic Survey Committee. Additional employment opportunities are being created for about 6,000 persons in these districts. The aim is to create local entrepreneurship, utilisation of local resources and mobilisation of available local skill.

The hereditry artisans are being imparted training for improving their skill and techniques of production

Rise in Export of Electrical Goods

India's exports of electrical products which amounted to only Rs. 19.3 million in 1960-61 increased to Rs 573 million in 1974-75 and during the last year jumped to the level of Rs 640 million. This rapid rise was possible both on account of market diversification and expended product mix.

The export value of electrical power machinery and switch gears improved to Rs. 166.52 million in 1975-76. Equipment for distribution of electricity netted Rs. 176.67 million against Rs. 151,58 million. Tele-communication apparatus fetched higher at Rs. 85.22 million compared to Rs. 66.31 million and other electrical machinery and apparatus Rs. 127.56 million as against Rs. 1.18 million. There was, however, some decline in respect of domestic electric equipment at Rs. 80 million compared to Rs. 83 million.

Ceiling fans made in India have established themselves in the world markets with assured and growing export income year after year. The quantum exported in 1975-76 was in the neighbourhood of 318.400 and the export value was as much as Rs. 64 million.

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RAILW PERFORMAN

Printed at Universal Advertisers E/2, Jhandewalan Extn., New Delhi-110055 and Published by the Director, Publications Division, Patiala House, New Delhi-110001

YOJANA

Volume XXI Number 4
New Delhi
March 15, 1977
24 Phalguna 1898

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati; Hindi, Malayalam, Marathi, Tamil and Telugu.

Y o j a n a seeks to carry the message of the Plan, but is not restricted to expressing the official point of view.

Chief Editor
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Editorial Office: Yojana Bhavan, Parliament Street, New Delhi-110001. **Telegraphic Address:** Yojana, New Delhi, **Telephones:** 383655, 387910, 385481, extensions 402 and 420, **Circulation:** Business Manager, Publications Division, Patiala House, New Delhi-110001.

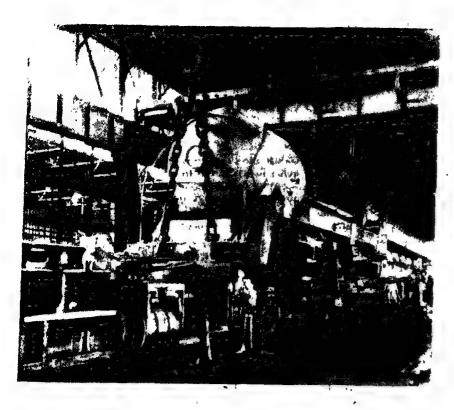
Subscription ; Annual—Rs. 18, Two years—Rs. 30. Three years—Rs. 42, **Foreign Subscriptions:** One year—£2.70 or $5.50. Two Years—£4.50 or $9.00. Three Years—£6.30 or 12.50. Single copy—eight pennies or $0.25

EDITORIAL

A CHALLENGE THAT BROOKS NO POLITICS

Development economics in the last thirty years has given rise to far too many cliches for the un-informed man to comprehend the real significance of the various experiments made to uplift the social-economy of the countryside. The facts that over 70 per cent of the population are dependent on agriculture, that the pace of urbanisation in India has been alarming, that the key to the future of farmers and unskilled labourers is dependent on the successful transfer of intermediate technology at various levels, the fact that plenty of money and effort have gone into the programmes of the community development, major and minor irrigation schemes, Small Farmers Development Agencies and the Marginal Farmers and Agricultural Labourers Development Agencies, the Crash Scheme for Rural Employment, the Drought-prone Areas Programme, the Tribal Area Development Programme, the Hill Area Development Programme, the Minimum Needs Programme and various other schemes designed to improve the lot of the handloom workers, artisans etc., have been well published. They have, as a result, had a accumulative effect on both the economy and the psychology of the people. It is well-known that India's future is very closely linked with development efforts in the fields The problem is not as simple as finding money and technical skills to implement programmes of agricultural development. All the Five-Year Plans have emphasised, with considerable lucidity, the need for engineered social change—a concept which takes into account the human being and the resources together. The results have no doubt been very impressive on many fronts. For instance, we have more than doubled the irrigation potential since 1951 by adding nearly 25 million hectares to the original 22.6 million hectares of irrigated land in 1951. We have brought electricity to a majority of the villages. The farmer is far more educated and enlightened today than his father ever was. He uses hybrid seeds, pesticides, fertilizers, and scientific crop pattern techniques and can speak knowledeably of the new agricultural technology. He knows today the value of environmental stability.

With all this, more than one-third of India's population is below the poverty line and the problem would not have been half as complex or disheartening if the population growth had been kept severely under check. The nation's principal worry today is how fast we can advance on the rural front to keep pace with the growing problem of rural unemployment. The Finance Minister Shri Subramaniam's paper of March 15, 1977 entitled "Strategy for Integrated Rural Development" presents the entire problem in a new perspective, outlining a multidimensional approach to engineered change. In this nation-wide task of harnessing technology to the welfare of the masses, various institutions are being involved. A beginning has been made with the budgetary provision of Rs. 15 crore with the promise of more money coming in as the programme gathers momentum. In the 20 districts that have been selected for the programme all over the country, universities, colleges, schools and technical institutions, CSIR and the ICAR are all being involved. The IRDB has, in the last one year, commendable performance to its credit and it is not unreasonable to expect that in the years to come this experiment will snow-ball into a big national effort. what it calls for is total dedication on the part of everyone and the role that the beneficiaries themselves have to play in transforming the rural society into a progressive force will provide the answer to the future of India. The commitment has to be total and are we going to meet this challenge?

The ravages of the Second World War, followed by the aftermath of partition left Indian Railways with a large fleet of over aged rolling stock. Today the Indian Railways have established a reputation in the world market as one of the premier manufacturers of all types of locomotives, coaches and wagons.

RAILWAYS

A GIANT INDUSTRY

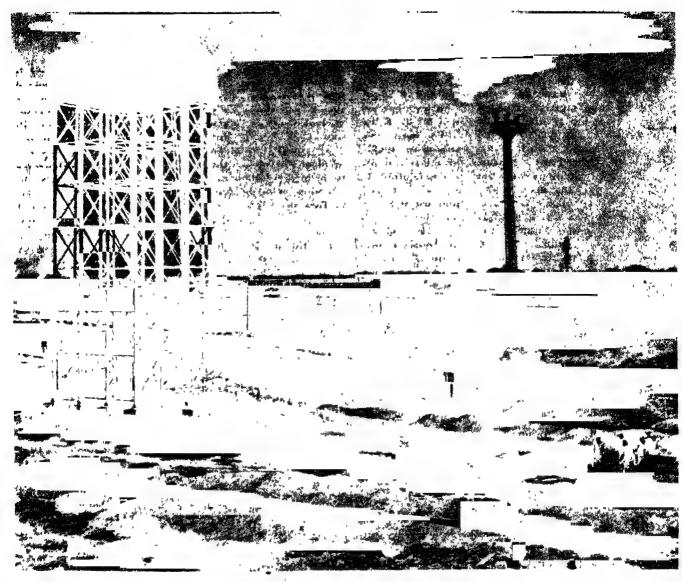
P. N. KAUL
Member, Mechanical Railway Board

INDIAN RAILWAYS have been the pace-setter for the industrial growth in the country. Railway workshops were amongst the first to appear on the horizon about a century ago against the predominantly agricultural background.

Of the total investment of over Rs. 5,200 crores in the Railways, the investment in rolling stock, locomotives, coaches and wagons is about Rs 1,700 crores. The efficient maintenance of the huge stock of 8,500 steam locomotives, 1,800 diesel and 750 electrical locomotives, 37,000 coaches and over 4,00,000 wagons has been entrusted to 46 mechanical workshops of the Indian Railways These railway workshops were modernised from time to time keeping in view the changing circumstances and the introduction of sophisticated rolling stock so as to be ahead of obsolescence.

The ravages of the Second World War, followed by the aftermath of partition left the Indian Railways with a large fleet of overaged rolling stock. Before Independence, Indian Railways were dependent for their rolling stock requirements on imports to a large extent. It was becoming difficult to keep pace with the increased demand of traffic generated by the industrial growth and economic development in the country. The immediate task before us was to attain self-sufficiency in the various requirements of rolling stock. Progress in indigenous production of rolling stock has made impressive headway, both in diversity and volume.

Above : A broad gauge locomotive being attended to at the South East Railway's Workshop, Kharagpur.

Below : Assembly shop of the Diesel Locomotive Works at Varanasi.

Wagons move ahead in mughalsarai marshalling yard.

Today the country is not only self-sufficient in the manufacture of all types of locomotives, coaches and wagons, but has also developed export potential in the midst of international competition.

Chittaranjan Locomotive Works

First in the series of production units was the Chittaranjan Locomotive Works. The factory at Chittaranjan was originally set up for production of steam locomotives. The construction at site was started in May 1948 and the first steam locomotive rolled out of the factory in November 1950. After producing 2,291 broad gauge and 60 metre gauge steam locomotives, the manufacture of broad gauge steam locomotives was discontinued from July 1970 and that of metre gauge steam locomotives from January 1972. With the modernisation programme undertaken by the Railways and with a view to achieving economy in transport cost and also generate additional traffic capacity with minimum inputs, it became necessary to go in for dieselisation and electrification

Production of electric locomotives was started at Chittaranjan in 1961 and upto March 31, 1976 the Chittaranjan Locomotive Works produced 75 DC electric locomotives, 469 AC electric locomotives and 259 diesel shunters. Five AC/DC electric locomotives for operating both on 1500 volt DC and 25 KV AC have been manufactured.

The electric locomotives now being produced by Chittaranjan have all been designed by the engineers of Indian Railways and this has been possible owing to development of a modern industrial base in the country since Independence.

Apart from meeting the requirements of Railways, the Chittaranjan Locomotive Works is supplying diesel shunting locomotives for various public sector undertakin such as port trusts, steel plant I.O.C. state electricity boards an fertilizer plants More than 7 diesel shunters have been supplie to these units till the end of Marc 1976

Another notable feature of th production unit is that it man factures all its requirements of fo

Railways are responsible for quick distribution of oil throughout the country.

gings, steel castings and high grade grey iron castings. Besides meeting its own requirements, the unit supplies all the steel casting requirement of the sister locomotive production unit, viz. the Diesel Locomotive Works at Varanasi. Encouraged by the success achieved by this unit in the production of sophisticated iron castings for diesel engines and transmissions for locomotives manufactured at Chittaranjan, this unit was entrusted with the task of developing and establishing series manufacture of alloy grades of castings for the diesel engines manufactured by the Diesel Locomotive Works, Varanasi These castings were hitherto being imported. Entirely with its own efforts and technical skill, the Chittaranjan Locomotives Works has succeeded in developing the difficult castings, such as cylinder heads, cylinder liners and turbo-charger castings Series manufacture of these castings for supply to the Diesel Locomotive Works has been commenced. This is a notable breakthrough achieved by this production unit in the matter of eliminating imports and conservation of foreign exchange. This effort alone will result in an annual saving of Rs 1.5 crores in foreign exchange

Integral Coach Factory, Madras

The second production unit to be set up by the Railways was the Integral Coach Factory at Madras Twentyone years ago, on October 2, 1955, Shri Jawaharlal Nehru, Prime Minister of India, formally inaugurated production at the Integral Coach Factory. Initially, the factory was set up for manufacture of only shells, which were to be sent to different railway workshops for furnishing. Later, in 19[illegible], a furnishing division was also started. A full-fledged annexe, capable of furnishing the entire production of shells from the Integral Coach Factory was set up in 1960-61. Upto the end of March 1976, this production unit has produced 11,243 shells and 9,230 fully furnished coaches.

To meet the growing needs of suburban traffic, the manufacture of a large number of electric multiple unit stock has been successfully carried out by the Integral Coach Factory without any foreign collaboration

Deluxe air-conditioned trains, with coaches produced in this workshop, are running between Delhi and the metropolitan cities of Calcutta, Bombay and Madras. For improving frequency of these services, air-conditioned deluxe trains, with end-on generation power cars, were successfully designed and built by the Integral Coach Factory The experience gained in building the deluxe rakes enabled the Integral Coach Factory to build coaches for the premier high-speed trains of Indian Railways, namely, the Rajdhani Express

Diesel Locomotive Works, Varanasi

The establishment of the Diesel Locomotive Works at Varanasi in 1961 opened a new chapter in the history of modernisation of motive power to cope with the demand of increased traffic Diesel traction is more versatile and flexible From a modest start in 1964 with 100 per cent imported components of the 2600 hp diesel engines, the Diesel Locomotive Works has done commendable work in establishing production with nearly 90 per cent indigenous components and achiev[illegible] 120 engines and is expected to achieve a level of production of about 125 diesel engines in 1976-77.

What needs to be appreciated is the fact that unlike the advanced countries of the world, where the diesel engine preceded the development of diesel locomotives for rail traction, the D.L.W. had to develop the manufacture of diesel engines, side by side with the development of locomotives, against the background of an inadequate industrial base from which these works could draw supplies of highly sophisticated components The foreign exchange content now is confined to certain hard core items only, like crankshafts, pistons, valves, a few

Starting from an humble beginning with a pair of oxen to pull the train, Indian Railways have today express trains from East to West and South to North with a running speed of about 100 kilometers.

*** With 8,757 route kilometerage of railway lines in its territory, the State of Uttar Pradesh has the maximum kilometerage of railway lines among all the States. Madhya Pradesh comes next with 5,733 rt. kms. followed by Gujarat with 5,651 rt. kms.**

*** The route kilometerage in other States is Rajasthan 5,618, Bihar 5,385, Maharashtra 5,232, Andhra Pradesh 4,725, Tamil Nadu 3,765, West Bengal 3,712, Karnataka 2,806, Assam 2,194, Punjab 2,134, Orissa 1,960, Haryana 1,400 Kerala 890, Himachal Pradesh 256, Jammu and Kashmir 82, Tripura 12 and Nagaland 9.**

*** The States of Manipur, Meghalya and Sikkim are yet to have a railway line.**

*** Punjab has 42.39 rt. kms of railway line per 1,000 sq. kms. of area followed by West Bengal with 42.25, Haryana 31.66 Bihar 30.97 Uttar Pradesh 29.40, Tamil Nadu 28.95, Gujarat 28.83, Assam 27.94, Kerala 22.90, Andhra Pradesh 17.07, Maharashtra 17.00 Rajasthan 16.42, Karnataka 14.68, Madhya Pradesh 12.95 and Orissa 12.40.**

*** As far as route kilometerage per lakh of population is concerned, Rajasthan has 19.58 kms. of railway lines followed by Gujarat 19.09 Punjab 14.49 Assam 13.27 Haryana 12.73, Madhya Pradesh 12.43 Andhra Pradesh 10.02, Maharashtra 9.47 Uttar Pradesh 9.13, Bihar 8.86, Tamil Nadu 8.43, Orissa 8.19, Karnataka 8.07, West Bengal 7.62 and Himachal Pradesh 7.05.**

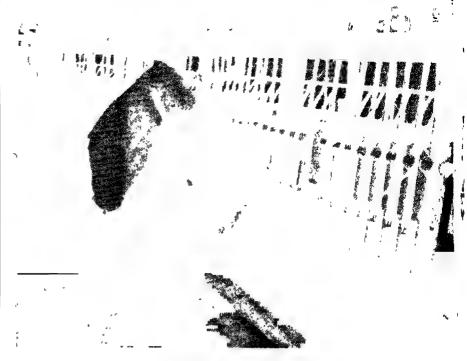
SPURT IN LOADING THROUGH FREIGHT FORWARDERS

Railway earnings from loading of goods through Freight Forwarders increased to Rs. 77.64 million during July 75 to December 76 period from Rs. 61.72 million in January 74 to June 75 period. This shows an increase of over 25 per cent in Railway earnings under the Freight Forwarder Scheme.

During the 18-month period between July 1975 and December 1976, the Railways loaded 23,482 wagons of goods collected by the Freight Forwarders from the trade and industry in small quantities and offered to Railways in wagon-loads. This is 2633 wagons more than 20,849 wagons loaded during the previous eighteen months.

Railways also accept parcels under the Freight Forwarder Scheme. During the July 75 to December 1976 period, the Railways loaded 3095 parcels earning Rs. 6.4 million as freight, as compared to 1896 parcels earning Rs. 5.1 million during the previous 18 months.

The spurt in loading on the Railways can in a way be attributed to the fact that all quotas and restrictions on the movement of traffic have been lifted and free flow of traffic over all routes and break-of-gauge transhipment points ensured. A significant breakthrough has been achieved in movement of traffic to Assam and other North-eastern States.

The rail transport capacity for freight traffic during this period has, for the first time, outstripped wagon demands. The outstanding demands for wagons which stood at over 137,000 on BG and over 169,000 on MG at the end of June 1975 came down to about 7,200 on BG and 3,800 on MG at the end of December 1974. This has been possible only on account of the improved availability of wagons as a result of the improvements in the operational efficiency of the Railways.

With the introduction of sophisticated rolling stock the old system of inter-locking rails has been modernised

componants of the turbo charger and special type of tri-metal bearings

The D L W started with the production of a 2600 hp broad gauge locomotive and later on added to its manufacturing range a 1350 hp metre gauge locomotives, a heavy duty diesel shunter for meeting specific requirements of our steel plants and diesel generating sets. Upto the end of 1975-76, the D L W had manufactured 688 BG diesel locomotives, 169 MG diesel locomotives, 37 diesel shunters and two diesel generating sets

Exports

Indian Railways entered the field of exports in a small way by exporting two carriage bogies to Thailand in April 1967 The next year, 66 carriage bogies were exported to Burma. The Indian Railways have since established a reputation in the world market as one of the premier manufacturers of coaching stock. They are now capable of manufacturing and exporting diesel locomotives of 2600 hp and 1400 hp. The Indian Railways have so far either executed or are in the process of executing orders for diesel electric locomotives, steam locomotives, carriages and their components. Exports of railway equipments and components have been made to various countries like Thailand, Burma, Nigeria, Syria, Taiwan, France, Canada, Zambia, Philippines, Tanzania and Nepal.

Though the Indian Railways have not exported wagons, as these are built mainly in the non-railway sector, the Railways render continuous assistance in the export of wagons by providing the necessary consultancy services

It is a matter of justifiable pride that these production units have helped and encouraged indigenous industries, both in the puublic and private sector, to establish production of sophisticated components for their manufacturing programme. Today Rs 230 crores worth of locomotives, carriage and wagon materials are bought annually from indigenous sources. Our efforts in this direction are continuing with more and more vigour and we are hopeful of getting the needed response from the Indian industry in our Swadeshi drive. □

PRODUCE MORE FOR SELF-RELIANCE

Railway Museum

A YOJANA Spot Report

by

S. RADHAKRISHNAN

Vintage Trains Tell the Story of A Major Public Undertaking

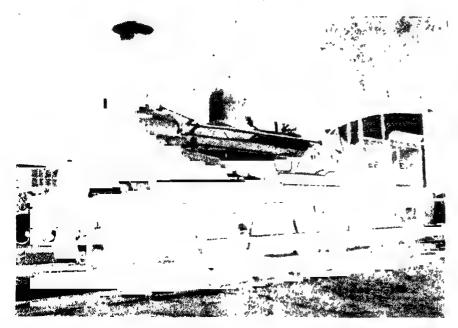
THE INDIAN RAILWAYS, was inaugurated on April 16, 1853. The first train steamed out on its maiden run from Bori Bunder to Thana, a distance of 35 kilometres A lot of water has passed under hundreds of railway bridges since then Today, the Indian railway network, Asia's largest and the world's fourth largest railways, covers over sixty thousand route kilometres with nearly 11,000 trains running everyday and covering a distance of over 1.2 million kilometres. With the growth of technology new and more expedient systems are coming into vogue, unconcerned with the beauty and the charm of the old

But the old cannot be forgotten. It has more than a museum value. The vintage loco museum at Delhi, built at a cost of Rs 4 5 million carries the visitor into history and presents a very interesting story.

Over five years ago, on October 7, 1971—to be precise, the foundation stone for the Rail Transport Museum was laid by the then President of India Shri V.V. Giri. The first of its kind, the museum sprawls over an area of 10 acres and comprises an octagonal building that houses six display galleries and a large open area simulating the atmosphere of a railway yard

The galleries display historical documents, working models, photographs and charts, the early development and growth of the Railways, engines and rolling stock, signalling and telecommunication equipment, engineering, construction and railway architecture. There is a gallery that displays post independence development of the Railways with its accent on self-sufficiency, export promotion and future plans

As you view the galleries, you will find that the double decker bogies that are so popular now was no novel idea They were in vogue as early as 1896

There are interesting models of ships and engines, coaches, wagons, coats of arms, clocks and photographs

There is a working model of the Cugnot Steam Vehicle. It was the first steam road carriage and was designed by a Frenchman Nicholas Joseph Cugnot in 1770. It worked at a maximum speed of two and half miles per hour and had to stop every 15 minutes to build up steam pressure. The original vehicle is now preserved in Paris.

An apparently irrelevent exhibit, youwill be amused to see a large white piece that looks like the skull of a monster. It is in fact the skull

Skull of the elephant that derailed a seven bogie train in 1894

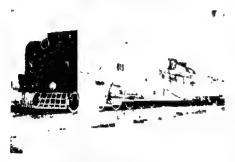
of an elephant that derailed an entire seven-bogie train on the Bengal—Nagpur Railway in 1894. The elephant caused this accident in the Saranda Jungle near Goilkera at a distance of 220 miles from Calcutta while the jay walking monster was crossing the track The elephant's tusks had to be cut before the train could move. One of the tusks was sent to the Board office in London and the other was retained by the driver James Bell, who later donated it to the Railways

In the yard, there are vintage locos, fanciful and ornate carriages and saloons used by former rulers and dignitaries kept in natural surroundings on tracks of various gauges. Like period furniture, they each have a story to tell, rich, exciting and colourful.

Fairy Queen, The oldest locomotive in the country, was built in 1855

'Fairy Queen' the oldest surviving member the locomotive family in India was built in 1855 by Ms Kitson, Thompson and Hewitson of Leeds, England. It was introduced on the Howrah-Ranigunge section of the East Indian Railways for hauling light mail trains. It was in operation till 1909.

An unusual little locomotive 'Ramgotty' was one of the six built by Anjubault of Paris in 1862-63 for the Indian Branch Railway. Normally Broad Gauge is 5 feet 6 inches wide and metre Gauge 3 feet- 3-3/8 inches wide, Narrow Gauge being still narrower But this loco was built for a four foot gauge line running along the side of the road between Nalhati and Azimgunge in Bengal. This engine was altered to broad gauge dimensions in 1896, after being taken over by the East Indian Railway in 1892, and was used as a shunter at the Jamalpur workshop

Another fascinating piece is a four-wheeled rail car fitted with a

This 234 tonne Garrat Engine is the heaviest engine in the world

petrol engine. From the outside it looks like a car moving on a railway track and at one time was used by inspecting officials between Simla and Kalka

A saloon used by the then Maharaja of Mysore is on view in the Museum The coach was built in 1899 and can be used both in broad gauge and metre gauge by changing the bogies. The body of the saloon is made of fine teakwood with inside panelling and an ornate ceiling including Silver lamp shades and outside lining of gold and ivory. The original fittings including an icebox, is in working order. Brass railings are seen outside the saloon in the verandah.

A saloon used by the Gaekwar of Baroda is also on view for the public. The original jade and gold ceiling was damaged. But it has been reproduced with a small portion of the original visible through a small glass panel. The fittings are all original

Saloon used by the then Maharajah of Mysore. The luxurious original fittings have been kept

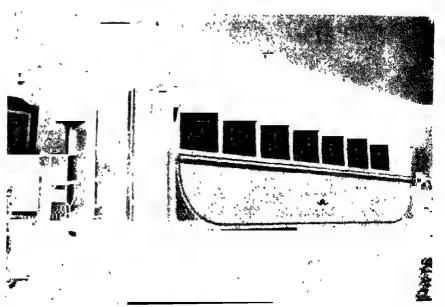
The Patiala State Monorail Trainway Saloon is no monorail saloon in the real sense. It is true there is only one track and there is only one wheel But to the right of the carriage there is an extra wheel at the end of an outrigger that runs not on the track but the road However, it has managed to survive with the original name given to it The exhibit is a reproduction body built at the Amritsar workshops in 1976 on an original underframe The coach was the private inspection saloon of Col. Bowles, who built the Trainway in 1907 The first Trains were pulled by mules But later on engines were provided.

There is also the viceregal dining saloon which was part of the Viceroy's train It can seat eighteen people. The original fittings have been preserved.

The saloon in which the Prince of Wales (later King Edward VII) travelled is also among the exhibits. This was built in 1875 at the Agra Workshop and in the following year was used by the then Prince of Wales for his journeys on the metre gauge section when he came to attend the Calcutta Durbar. The original furnishings have been preserved and is fitted with gas lights. It is an example of a high degree of comfort and craftsmanship.

There are 43 Vintage locos and 17 quaint saloons and coaches in the yard There is also a working joy rail which give children and adults, a joy ride round the yard.

This sprawling complex promises to become a major tourist attraction in Delhi □

This posh saloon was built for the Prince of Wales (Edward VII) when he came to India to attend the Calcutta Durbar

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Please Note

IT IS ILLEGAL TO POSSESS A WIRELESS SET OR TV SET WITHOUT LICENCE.

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DISCIPLINE IN ANY form is an element of all organized activity, whether economic, social or military. In economics, it performs the function of setting limits to individual behavior (such as a *consumer* or a *firm* or a *monopoly Seller* or *buyer)* which may jeopardize the interests of the Group (like a group of *consumers* or the entire *industry* or even the *market structure*). By doing so it maintains a certain order as chosen by respective economic system. In a purely capitalistic system the limits may take the form of profit motive; in a mixed economy the limits often take the form of mandatory state controls; in a socialistic system the limits take the form of further state controls as well as state ownership. By its nature discipline is negative usually operating through penalities for inaction or inappropriate action, rather than rewards for right action as in the case of incentives. Thus, a critical question within any economic system becomes what form of discipline is to be imposed and by whom. It is therefore a difficult task for Political Economists to strike a balance between *economic severity* and *individual leniency*. In general the answer has been cued to the needs of the society, tending toward vigor in times of scarcity and toward relaxation in times of prosperity.

Discipline and Economic Development

THE CASE OF INDIA

Forms of Economic Discipline :

An attempt has been made to group the forms of discipline into three broad categories Such a classification is based on the means of action used by various nations practising different economic systems to attain self sustaining growth. In particular the study utilizes the recent policies persued by India to bring about domestic economic discipline which is a precondition for development. Th realms of discipline differ, depending on one's view of the relative weights given to the *economic rights of individuals* versus the *rights of the organization of the economy* The three broad categories of discipline are :

1) Economic Discipline in Pure Form:

In its pure form economic discipline is authoritarian both in judgement and execution. There is no provision for appeal At the most only under stringent and scracity conditions of goods and services—exceptional arrangements are permitted for review. Conduct in consumption and production are customary, understood; adjudication prompt and final. As examples—an employer fires a worker and no questions are asked or in a *fair price* shop prices are fixed and no haggling takes place. Every economic action is adhoc discretionary at the will of the final authority, be it a consumer or a producer. Further, if the rights of the authority are supreme and unquestioned—economic discipline may become anarchic. This means that the economic conduct of subordinate units have one option viz they comply with the direction of higher authority. Thus discipline in pure form allows for only limited cooperative economic action.

(2) Self Determined Economic Discipline :

At the opposite end of the spectrum the economic rights of the individuals may be supreme and thus discipline becomes a matter of choice for the individual. This means that the conduct of subordinate economic units is self determined The individual may comply or fail to comply with the directions of the economic system as it seem fit. These directions are usually broad by nature and relate to production and consumption For example —a worker may be given order and yet he may decline the work assignment without fear of repraisal. In this case, the worker may be protected by a union. The responsible authority in this case may either permit the free choice of the individual or have insufficient powers to enforce stated rulings. The economic consequence of such a system is that rulings of the authority are often challenged and it results in delays and lags in production and thus bottlenecks in the intersectoral linkages of the economy. A further result may be scaricity, unemployment, inflation and a growing dependence upon a welfare state. The recent examples of this are prolonged strikes by the United Rubber and Auto Workers of U.S.A.

By its very nature the discipl through self determined process inimical to organized economic a vity—hence it can be regarded the antithesis of discipline.- Mo fications of authoritarian disc line in the direction of protection the economic rights of individu are movements towards self det mination.

(3) Economic Discipline by D Process :

The intermediate form of disc line is by due process. Econor discipline under this system is bas upon a body of recognized rules consumption, production and dis bution of goods and services It administered under some form judicial or legislative or consti tional procedure In such a syst there are agreed upon standards economic conduct and behavi Usually these standards are publi ed in statue, codes, conctracts et however, often these standards informal though universally acce ed in the economic system A there are agreed standards of m conduct like, hoarding of essent consumer goods by the middle m to seek more than normal profi smuggling of non-essential goods encourage conspicuous domes consumption—all of which are d terrent to the national econon growth. Specific penalties for vario classes of economic misbehaviour often expressly stated and ma known to all within the jurisdic tion. The administration of disci line by due process is either in t hands of a disinterested third pa

like police force or courts or arbitrating tribunals and generally appeal is allowed (unlike economic discipline in due form). The absence of formal methods of charging, investing, proving and punishing the economic mis-conduct will amount to denial of the due process. Thus economic discipline by due process attempts to balance the rights of the individual with the needs of the economic system An "economy law" replaces an "economy by individuals" even though the individual is still paramount to the success of the organization as a whole[8] Adopting a system of economic discipline by due process is consistent with a society committed to the ethics of individualism and yet from the stand point of economic organization, there may be accompanying liabilities—it may be cumbersome, time consuming, inefficient and often annoyingly delaying Rules grow, interpretation becomes more difficult, precedent multiply and the system may fail to work as envisioned Rapid shifts of policy to conform to changing structural and external economic conditions become more difficult Thus a system where due process has existed over time may be ripe for change--with those in authority seeking discipline in the pure form and individuals seeking self-determination.

Theoretically a peaceful system is the ideal state of economy, with coercion absent-cooperation based on agreed division of production and norms of distribution The ethical basis for this view is to teach full responsibility to the economic individual towards self-discipline and in some small intelligent groups, with a full understanding of problems shared by all In the present highly organized and intensely competitive state of human and economic affairs, it may be disregarded, other than as standard comparison at the opposite extreme from absolutism While imposing economic discipline, it must be borne that the interests of the individual are short run and the needs of the society are long run Unless it is a well balanced compromise, it may imperil the latter in periods of shortage and stress.

Discipline as a Premise and Prerequisite for Greater Productivity—The Case of India

Any industrial society requires discipline of a particular form. No doubt, a predominantly agrarian society such as India after nearly two centuries of British contact has been socially and economically disorganized The British had successfully instituted a "resource drainage economy" out of India. After independence old order has crumbled without being replaced by an established new order. Individualism, skepticism, emancipation and competitiveness—features of the western democratic industrialism have penetrated into the old Indian social order, corroding and undermining it and thus causing its disintegration. The old agrarian order has found difficulty in coping with the radical changes and the social dualism persists acting as a constraint to social change and economic development.

In fact in the case of India, the emphasis of its traditionalism is largely on spiritual attainment and thus the primary socio-economic relationships have revolved around the caste, the village which have resulted in group exclusiveness. Further, rapid industrialization and economic development requires severe sacrifice and many Indian sects who are superstitious and believe in fatalism have resisted it during the last two and one half decades of planning in India

Since 1947 India has attempted to combine what are often considered to be incompatibles political democracy and the alleviation of wide-spread poverty The results have been mixed There has been progress in some areas and difficulties in others During the early seventies the failures have become particularly painful, widespread scarcities and rapid inflation Public Law 480 wheat from the United States became scarce and the Indian consumer was dependent upon the free market for necessities; a pound of rice often cost more than a worker could earn in a day. Other shortages also existed kerosene, petrolium, pharmaceuticals as well as other critical inputs As the dimension of the problem grew rioting broke out in several parts of the country and the fear of authority that was ingrained in the national consciousness during the one hundred and fifty years of colonial rule disappeared. Police became the object of protest, particularly by the young who attempted to disrupt the social and economic order.

The important question which began to be asked in India as well as elsewhere was where the Indian economy headed. The concept of Indian unity also was questioned and fears existed that the situation would deepen unless the country could regain the economic momentum of the fifties. It was obvious to many again both within the country and outside that a new discipline was required for the Indian economy. Had such a discipline been practised since independence through strict implementation of legislations, India would have avoided the deepened crises of early seventies The following section outlines some of the disciplinary measures recently adopted by India

These measures have far reaching social and economic consequences on the rural population of India. Essentially they aim at increasing the perceptibility of all sections of the population towards growth. Thus India had no soft alternative to combat her problems other than seeking the choice of disciplining her population through a more stringent form of "*due* process" in order to exercise constraint in consumption and to adopt new and faster means to increase productivity

(a) New Norms in Family Planning

Demographic experts have forecast that India's population will exceed 1,000 million by the turn of the century. India is a secular country comprising several religions, the most prominent of which are the Hindus, the Moslems and the Christians With vast religious diversity and each religion advocating its own philosophy of family growth and composition, the task of Indian planners in restricting the population growth becomes difficult. For example, the Hindu orthodoxy tends to favour continence and self-control and counsels against what is described as unnatural means to prevent child birth

Islam on the other hand permits only one method of birth control—*coitus interruptus*. The Moslem philosophy is against compulsory sterilization Even the Catholic church has favoured abstinence and oppose any artificial or unnatural means to limit births.

Despite the vast religious diversity and opposition, India was the first country to embark on an official family planning programme in 1952. The importance of family planning in a developing economy with a rapidly growing population has been fully recognized by Indian planners. Allocation of funds for the programme by the Indian Government increased from 0.30 million in the First Five Year Plan to 370 million in the Fourth Five Year Plan. It is evident from the available data

or the past few years, that the voluntary programmes of family planning have not been very successful especially in rural areas. A reduction in fertility rates needs motivation but such motivation was not found in India because of complex socio-economic and religious conditions The experience has proved that mere propaganda or provision of contraceptives will not produce the desired results. It can come either by regimentation or by forced economic development which will involve the majority of the people in the country's growth process. In turn this would take several years before any results are produced.

In order to avoid the explosion of "population bomb" the only alternative left to Indian planners was to impose mandatory measures such as compulsory sterilizations, restrictions on family size and banning early marriages Certainly compulsion of any form will not be easily accepted by all the sections of multi-religious population Yet the gravity of the issue is beyond doubt as it involves not only the existence of present generation but the future as well

A prerequisite for the success of new kind of "population revolution" lies in making the citizenary of India realize the catastrophic consequences associated with the present population growth rate of .5 per cent

Again since voluntary compliance alone cannot be expected to produce results at least in the near future the only option is to resort to more stringent measures For example during the current year one state, Maharashtra has imposed mandatory measures such as compulsory sterilization for couples with three or more children. Also in April of this year (1976) India announced a package of incentives and controls to achieve smaller families including an increase in the minimum marriage age from 15 to 18 for girls and 18 to 21 for boys The total package is designed to decrease birth rate by 1984 from 35 to 25 per thousand or a corresponding growth rate of 1.4 per cent. In addition the government has also established population control objectives, such as a target of 4.3 million sterilizations for this year more than three times the level of any previous year.

The above and other more stern measures imposed by state governments can produce the desired results. Most recent statistics indicate that nearly two million sterilizations have been achieved within the past five months as compared to only 437,400 people in the same five months of last year.- Thus it may be concluded that a new form of discipline in this area is yielding positive results. yet more remains to be done

(2) **Decline in the Inflation Rate :**

In the first six months of 1974, the country was experiencing a runaway inflation of between 25 and 35 per cent. However, with the aid of a strong anti-inflationary programme announced by the Indian planners which attempted to curb speculation by a more disciplined use of bank credit consistent with the broad national priorities and with the need for stimulating production in the priority sectors—wholesale and retail prices of a large number of articles have since declined sharply India currently has the distinction of being one of the few countries where inflation has been controlled Since April 1974, inflation has decreased from 30.1 per cent to 6 5 per cent in April 1975 and 2 1 per cent in July 1976 - Taking the world as a whole (excluding the Socialist block countries) the inflation rates for the corresponding periods of time were 14 6 per cent and 14 4 per cent. Compared with the less developed countries of the world the gains made by India in the area of inflation control are even more impressive

According to a recent report of the World Bank, India's anti-inflation program has been one of the most successful in the world and that inflation has been brought under control It is important to note that in India the objective was not to bring about a slump in prices but to stabilize them at economically desirable levels.

These facts are an indication that restrictive financial policies can work. The present policy of restraint has helped to prevent inflation from destroying the Indian economy. Again it must be noted that monetary descipline can and did play a role in the control of inflation.

(3) **Enforcement of Land Reforms :**

Professor Warriner, in his book *Land Reform in Principle and Practice* noted that in India the problem of relating land reforms to development policy is highly complex He further observes that too many legislations were enacted in the past without being vigorously implemented Looking at the statistics of the early seventies, it was difficult to believe that tenancy conditions could be improved for the rural farmers.

At the time of independence more than 98 per cent of all agricultural land was owned by only 10 per cent of the feudal population. After 25 years of planned efforts, 80 per cent of all the agricultural land was owned by 15 per cent of the population. The remaining 85 per cent did not even have enough land to live on. Since June of last year nearly 39 million acres of "surplus land" has been made available for distribution to the landless. This task was made more difficult since 17 states out of 22 did not have adequate land registration The average acreage of land ownership in India per family is now between 17 and 20 acres In 1975, the Indian planners gave land reform top priority with greater emphasis on better maintenance of land records. As a result several thousand hectares of land have been distributed to the poor.

(4) **Provision of Housing for the poor:**

At the time of independence the housing situation both in the rural as well as in the urban was inadequate. In rural areas homes often did not have any modern hygenic amenities which are considered indispensable in Indian towns and cities

Dwellings were often only one or two rooms Sanitary condtions were appaulling and it is not unusual to find one water tap for several dwellings Yet the working class spent about 20 per cent of their total income on housing or rent; one can certainly speak of exploitation by landlords Such exploitation by landlords continued for some time and even governmental housing policies were discriminatory against the poor Planned housing construction were for upper and middle classes whereas the poorest classes suffered most

According to a report by the National Committee on Environmental Planning and Coordination released this year, nearly 30 percent of India's urban population lives in slums or in squatter settlements. The report noted that in 1953 in the capital city of Delhi there existed one squarter household for every two non-squatter hold for every two non-squatter households. in 1973 the ratio was one to five The squatter population of Delhi has been growing at a rate of 12 per cent per year for this period while the population growth in general was 4.5 per cent. The growing number of slums and squatter population in India has made it

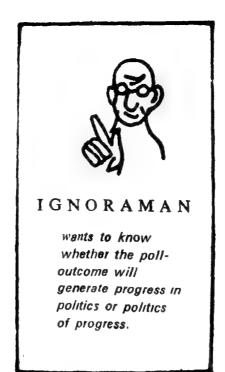
necessary for its planners to adopt more stringent and what may be painful measures to control and solve housing problems.

A recent programme of making available housing parcels for landless and poorer groups of the population will help to ease the problem The goal of working against a further spread of slum districts is a needed measure from both a socio-economic point of view as well as ecological point of view The most recent program of slum clearance has made progress in several ways viz:

(a) land speculation has been somewhat checked, thereby controlling the rise in the price of land and houses,
(b) the plan of rehousing the poor who have been evicted from the slums is being speeded up,
(c) the cost of rehousing the poor has decreased and
(d) overcrowding in strategic places of commercial importance has declined, thereby protecting the environment

(5) **Assurance of Minimum Wages :**

A Labour Ministry study in 1950-51 revealed that agricultural labourers could find employment for an average of 218 days a year, female agricultural labourers worked for only 34 days a year and were therefore out of work for more than half of the year Thus unemployment along with underemployment has depressed income of wage earners Even during the five-year plans there were often as may as 5 million unemployed workers This coupled with the existing inflation caused a reduction in the standard of living of workers for which most of them were already below the poverty level Capital accumulation was often wasted in speculation, money lending and increased ownership of personal property and thus was not providing new opportunities for employment and a rise in wages.

In the past slowness in enforcing laws which fix ceilings to agricultural holdings and the conditions in which they were applied resulted in no gains for raising the agricultural wages. At present, the governmental grants of moreland to the landless would not only improve their lot but would raise the general level of wages. A recent legislation legally establishes an increase in minimum wages of field workers. Such current economic efforts to combat poverty and unemployment, must again be brought about by a new accepted form of economic descipline

(6) **Ban on Indigenous Money Lending**

Most lending operations in rural India have been highly detrimental to productive capital accumulation However, their effects in the past were generally underestimated. First, the high interest rate has tended to increase poverty among the peasants and second the money borrowed is often used for usury rather than production[19]. In addition, rural money lending opperations have also caused a drain on urban capital formation In states such as Bihar and Orissa indigenous bankers have lent money to grain merchants and advanced directly to "ryats"—who in turn had easy access to towns. Thus indigenous bankers indirectly financed agriculture by financing internal trade [20]

Final liberation of the agrarian population from dependence upon exploitive money lenders came when several Indian states declared moratoria on indigenous debts. Nearly 65 per cent of the rural populace owed a total of £ 7 billion to private money lenders. With the assistance from the World Bank a number of new measures have been undertaken like-the increase in the number village banks and the provision of easy terms for financing agricultural development, have all helped to increase the liquidity of the rural population.

(7) **A Nationwide Network of Power and Irrigation Facilities :**

Performance of Indian agriculturel [...] sults than expected. Certainly one reason must be the lack and failure of technical considerations as well as social considerations of production. For example, the minor irrigation projects have experienced a lag in proficiency because of the opposition from private property owners and because the land is often divided into large number of strips. And how the water is shared often depended on the social influence of the land owner concerned; the wealthy landowners often getting a more than regular and more plentiful water supply. Also the wealthy landowners would support water projects which benefitted their property by opposed projects which would benefit properties of other hundreds of small land owners and yet had to cross their lands. Thus, the rich could ensure themselves with a plentiful supply of water while others would lose interest since there was no collective effort to maintain and support an irrigation network with an equal distribution of water [22]

The Indian government has recently assumed far reaching powers which have put an end to provincialism with regard to sharing of water and power supplies A nationwide network of irrigation and power has replaced individual state systems which often led to arbitration and long delays. Under the new network 13 million acres of land will get increased utilization of ground water. The severe shortages of power and water can be avoided by a more equitable distribution.[23]

Besides the inequitable power distributions, the Indian economy has in the past been plagued by the shortage of power. Since June 1975, special efforts have been made by government to recognize such deficiencies and special emphasis has been given to the generation of more power Since this time the generation of power by both thermal and hydro units has increased by 15 per cent.[24] The total energy production by difference sources has increased from nearly 22,000 KW to about 25,000 MW. As a result of an increased and uninterrupted energy supply industrial and agricultural production can increase considerably in the future.

(8) **Encouragement of Small Scale Industry**

In 1950 over half of India's industrial production came from small scale industries and by 1964 this had decreased to about 37 per cent.[25] However, the number of small

scale units with investments below £ 100,000 has increased from 36,000 in 1961 to 320,000 in 1972, employing over 4 million people and producing goods worth £ 8 billion.[26] In India, the importance of adopting intermediate technology for Indian conditions has been underlined very often. Official attitude was that small scale industries should underto, considerable development especially in the field of handicrafts and village industries. This is closely related to the Gandhian concept of ruralization and steps from hostility towards urban development and concentration of economic power. It is easier to increase employment by favouring small industry rather than by expanding large scale industry. Since the former requires more man power and demands a smaller investment per worker.[27]

The development of small scale and agro-based industries are an important aspect of the development in villages where more than 70 per cent of the population lives In villages it is required that people should be able to produce within the village system. It is difficult to provide more and more employment by a process of mechanized industrialization at least not in the immediate future Therefore, it is necessary that India continues to attach high priority to this employment oriented section of industry.

The recent methods used to encourage small scale industry are in accordance with the concept of its utility by following a policy of 'internal protection' i.e. by forbiding the expansion of urban modern industries; provision of subsidies, financial aid and tax rebates, etc. This has reversed the trend of development of small scale industries from towns to rural areas where they serve the need of villages. There are other measures used to ensure a nation wide flow of progress of small scale industries in order to eliminate regional inequities. The new emphasis is to develop agro-based industries in villages and the trend toward 'ruralization' has helped to exploit resources in the villages. As a result the domestic markets can expand and potential sources for capital accumulation open up.

(9) **Action Against Uneconomic Strikes:**

One method for approximating the decline in the production of large industries is to calculate the number of man-days lost due to strikes. This measure is a proxy for the production lost due to strike activities. This method may not be entirely satisfactory but it gives some indication as to the impact strikes have on production.[28] There were about 400 strikes a year after the Second World War with a loss of production of 5 to 9 million working days. The trend over a period of time has been towards a greater strike activity[29] During 1973-74 a sporadic rail way strike nearly crippled the Indian economy. In addition there were series of strikes in the public sector all of which resulted in heavy losses due to the operation of negative linkages and multipliers in the national economy. A series of new legislations passed recently by the Indian Parliament are an attempt to reduce the number of lockouts and wildcat strikes. Assessment of the impact of these measurements is difficult because of the time frame however, it is expected that industrial production will stabilize and thus overall industrial production will increase.

(10) **Rise in General Economic Growth :**

India along with the rest of the world was caught in the inflationary spiral of 1973-74. This coupled with simultaneous droughts in 1973 and 1974 depleted India's buffer stock of 9 million tons of food grains. Then a rise in world oil prices that hit India even more harshly as she has to import oil, industrial materials and fertilizers. With all these problems and setbacks, the Indian economy has been experiencing a growth rate of about 5 per cent during the 1975-76 year. In addition there has been an improvement in industrial and food sectors, two vital sectors to the Indian economy. The other economic indicators have also shown considerable improvement. For example, foreign exchange remittance has increased and despite a large trade deficit, India's foreign exchange reserves are in a relatively good position. Also tax realizations both direct and indirect, have greatly improved. Production in the public sector has increased during 1975-76 and is expected to continue to generate additional internal resources.[30]

(11) **Increase in Food Production**

It is generally recognized that inflation can be checked only through a sustained increase in production in both the agricultural and industrial sectors. The agricultural sector is of dual importance since it not only provides necessary food grains but also provides raw materials required for industrial production. Also is obvious that if India has to me her food needs, agriculture has t be modernized so as to increas productivity in relation to land an manpower. Such increases in pro ductivity can be brought about wit larger application of fertilizers, greater use of pesticides, regulatio of water use, provision of roads markets, storage warehouses etc The economic program embarke by India in 1975 envisages that fiv million additional hctares be brough under cultivation in the next fiv years. In addition, the network o irrigation was stepped up and plans were made for improving the production of fertilizers. With all these factors combined and with a satisfactory monsoon, the productin of food grains is expected to reach a record of 116 million tons this year. This is about 2 million tons over the target for the current year. This can be expected to grow substantially, particularly in the long run In fact, India will be able to build buffer stocks and become less dependent upon foreign supplies.

(12) **Increase in Industrial Production**

Before independence, most of the the industry in India was confined only to light industries — mainly cotton textiles, jute, sugar and paper etc. India's Second Five-Year Plan marked the beginning of a real industrial revolution. Between 1955 and 1960 industrial output increased by 38 per cent. Though there have been some notable gaps in the fulfillment of the plan programs of industrial development, the overall growth rate of industry has been 6.1 per cent.[31] The broad strategy of growth led to a significant change in the structure of Indian industry during the decade of 1960-1970.

The above achievements however, were slowed down by several socio-economic problems in the early 1970's. Industrial production was at a virtual standstill for the years prior to 1975.[32] Industrial output went up 4.5 per cent during the 1975-76 year. The industrial production has increased by 9 per cent in the first five months of 1976, against 2 percent for the pcorressrding period in a1975. There one, since 1975 great progresshasbeen achieved in the area of industrial development. Steel, coal and sugar are just a few industries which have shown a substanial growth. At least party this growth is brought about by the fact that at present

both labour and management are more disciplined and both of them relize their economic responsibilities.

Accelraring industrial growth is imperative for improving the backwardness of several of the Indian states, for providing continuous employment and a constant growth-rate. Governmental efforts in the past year have been and will continue to be vital for achieving such balanced industrial growth.

(13) Tune Up of Civil Administration

In contrast to former Parkinsion practices, the hordes of Indian bureaucrats now seem to be arriving punctually for work and taking a greater sense of pride in their work — despite restrictions on overtime pay.[33] The trained manpower in the bureaucracy can be made to function in yet a still more efficient manner through an acceptance of the concept of work and efficiency. The optimal functioning of the civildom is a necessary precondition for development — since greater part of the Indian economic activity lies in public sector

(14) Increase in Exports

In order for the country to be self-sufficient greater importance should be attached to the export sector of the economy. Also with rising standards of living, growing industrialization compartive cost advantage ads complimentarity in production of primary commodities and manufactures, there-by creating immense scope for larger commodity exchanges and supply of services. Recently India has announced several measures to simplify export procedures In addition, cash incentives have been suggested as inducement for exporters as a long run measure. In regard to the import policy for the country, import replenishment rates have been established for a number of non traditional products so as to strengthen the production base and the incentive for export.

The export statistics for the period 1975-76 have improved compared with the past years, however, the long run scope for improvement is immense as the Indian economy seeks to become more efficient and effective in the future. The statistics for engineering exports are more impressive as Indian engineering exports increased from £ 216.66 million two years ago to £ 444.44 million in 1975-76. What is more important is the fact that the production composition of India's engineering exports is gradually changing with a much higher proportion of it being capital equipment and turn key products. There is still immense scope for increasing engineering exports.

IV. To Sum Up

Discipline is an element of all human activity. The concept of discipline for an economic system defines the standards, norms, the procedures and processes accepted within an economy. It implies a framework, a set of objectives by which a proposed economic action may be measured and its costs assessed, a set of standards by which account may be taken of other people's economic capacity and productive power of a nation as a whole.

There are many glaring imbalances in the economics of "Third World" nations unemployed and underemployed resources, difficulties in balance of payments and a variety of bottlenecks which impede production and distribution Development planning seeks to breakdown these structural obstacles which hinder growth The problem becomes more aggravated because the aim is to achieve revolutionary changes without bearing the often very high social costs like — exploitation, overcrowding, misery, slums — which accompany economic progress in most cases. Thus the central purpose of development is to bring about social and cultural change so as to increase the production of goods and services which constitute the national income. A precondition for such a change is to *discipline the citizenry* towards the concept of *efficient work and optimal utilization of scarce resources* to attain rapid growth.

The concept of discipline in the Indian economy is unique since India recently decided that the economy could not longer continue without a redifinition of discipline. It has been the case that this discipline had to be imposed upon the people, usually for their benefit. However, this study has presented evidence that the result of this imposed discipline will be a more productive and equitable economic system which besttow benefits upon the entire Indian population

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(*Contd. on Page 31*)

Inflation and Planning

MAHESH VARMA

A long period of economic stagnation, against a background of increasing pressure of population, followed by the burdens of the Second World War, had weakened the Indian economy. There was widespread poverty and want. The partition of the country uprooted millions of people and dislocated economic life. Productivity in agriculture and industry stood at a low level. In relation to needs the available domestic savings were altogether meagre. The promise of freedom could only be redeemed if the economic foundations were greatly strengthened. The constitution established equal rights of citizenship, and these had now to be expressed through rising levels of living and greater opportunities for the bulk of the people. It was essential to re-build the rural economy, to lay the foundation of industrial and scientific progress, and to expand education and other social services. These called for planning on a national scale, encompassing all aspects of economic and social life, for efforts to mobilize resources, to determine priorities and goals and also to create a widespread outlook of change and technological progress.

THERE ARE SEVERAL arguments against inflation. Inflation is not conductive to, and, on the contrary, is detrimental to economic growth. That is why, at first, it has been argued that a very rapid rate of inflation may be necessary to effect a significant increase in the real rate of voluntary saving through inflationary re-distribution. Second, the crux of the pro-inflation argument is the alleged high propensity to some of the groups benefiting most from inflation Third, it is arguable that a degree of inflation of the order postulated by Prof. Kaldor, and Prof. Lewis, may actually cause a diminition in voluntary domestic saving as a result of loss of confidence in the monetary unit, and a possible net reduction in the rate of total voluntary plus forced saving. Fourth, inflation may cause saving to be directed into non-productive and highly liquid forms of investment. It has been suggested that the windfall profits and capital gains of inflation broaden the scope for profitable investment in areas where use benefits are low and 'ownership benefits' high, such as in Gold hoarding, the acquisition of certain types of real estate, inventories and foreign assets. Fifth, inflation might have a serious effect on the flow of foreign capital to India, and might encourage a flight of foreign and domestic capital. Sixth, it is likely that inflation will hinder the expansion and the diversification of exports. The Third Five Year Plan also drew specific attention to the danger of inflation in India in this regard.

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In regard to the Pro and Anti-arguments of inflation, a substantial quantity of statistical material is available on the relationship of growth and inflation in developing countries, like India, since 1945. The conclusions of these studies are that, beyond a moderate rate of price increase, upto a maximum annual rate of 5 per cent, the rate of growth of income has been inversely related to the rate of inflation.

A growing economy, such as ours, must have sufficient flexibility in its price structure in which growth is most rapid. Consequently, the Third Plan has recognised this situation by stating that price policy must ensure that the movements of relative prices accord with the priorities and targets set in the plan

Now, the tax policy to control inflation will have to be directed both to the level and composition of aggregate demand and to problems on the supply side such as inelasticity of food supply, relative immobility of resources, and scarcity of skilled labour. Policy oriented to supply problems should be geared, first to promoting increased agriculturl productivity, and, second, to the provision of tax incentives for labour to work, particularly in key occupations, for firms to operate efficiently and at optimum output in terms of planning goals, and for the transfer of resources toward most desirable activities—in short toward the elimination of supply inelasticities, and the, promotion of increased factor mobility. Conventional fiscal policy for stabilization operates on the level of spending. Tax policy under this head may be either automatic or discretionary.

In India there are very limited coverages and relatively low elasticity of the present personal income tax which limit the usefulness of the income tax as a tool of built-in flexibility. Although modifications in the rate structure and coverage should increase the responsiveness of the income tax to aggregate income changes, the major onus of providing built-in-flexibility in the immediate future must develop towards indirect taxation. Indirect taxes have a wide base and elasticity studies suggest that revenue is surprisingly responsive to income changes. However, built-in flexibility in indirect taxation, is at best an imprecised and unreliable factor owing to changes in taste, and fashions etc. In this manner a mix of direct and indirect tax measures would be employed to excercise a maximum inhibitory effect on consumption spending and a minimum inhibitory effect on investmnet spending. The final object of a development-oriented stabilization policy in India should thus be to control non-functional instability by means which have a minimal inhibitory effect on productive investment.

As regards the Anti-Inflationary taxation, one of the fundamental principles underlying workers' management is distribution of income according to work performed. In an unregulated market income per worker will vary widely from industry to industry. For the same work in different industries personal income may differ upto 100 per cent. There is no problem if income

differs among the firms within the same industry; these differences reflect differences in quantity and quality of work and of entrepreneurial activities of working collectives, but if differences are large among industries, the causes of differences are obviously unrelated to the work performed since for statistical reasons it is unlikely that an entire industry has only good workers and another one only bad workers. Since there is a strong social pressure that rewards be commensurate with work performance, workers in underprivileged industries will increase their wages in order to catch up with their colleagues in the more prosperous industries. In order to be able to do that, they will increase prices, and that is the beginning of an inflationary spiral which never stops. It is clear that price control, restrictive monetary policy and other orthodox measures can not be used to combat the type of inflation just described The source of inflation is not only in the rise of personal incomes but in the already attained level of personal incomes in privileged industries because of which there appears a so-called demonstration effect. Therefore, in addition to the rise of personal incomes an, above standard, level of personal incomes should be taxed. Economic control of incomes will make possible the elimination of administrative control of prices.

The First Plan took over several projects, which had been worked out earlier and integrated them in a well-knit scheme of economic and social development embracing every part of the country through its emphasis on agriculture, irrigation, power, and transport. The plan aimed at creating the base for more rapid economic and industrial advance in the future. In stressing the place of social change and institutional reforms in the economic development of the country, the plan initiated some of the basic policies which were further developed under the Second Plan. The completion of Second Plan in March 1961 marked also the end of the first decade of India's planned development During this decade there has been rapid expansion of the Indian Economy, the outlines of the country's future-social and economic structure-have been established, and foundations have been laid for the achievement of the basic objectives and the long term economic goals set out in the Plan. As a result of economic planning, there was a substantial increase in the role of investment especially in directions calculated to accelerate the economic development of the country.

Apart from the general improvement in the economic situation, the assessment of resources for the plans have taken into account the award of the Fifth Finance Commission, the nationalisation of 14 major Commercial Banks, acceleration in their branches, expansion and deposit mobilization, particularly in rural areas, re-orientation of investment of policies of the Life Insurance Corporation of India, and the Employees Provident Fund, and the more recent trends in receipts and expenditures of public authorities. This assessment has been made in consultation with the Central and State Governments, Reserve Bank of India, Life Insurance Corporation of India, Provident Fund Commissioner and the undertakings of the Central and State Governments. The scheme of financing the plans now envisaged marks a distinct departure from that in the Third Plan and the Three Annual Plans. It has been specially designed to serve the objective of growth with stability and promote progress towards Self-Reliance.

The recent economic growth, for which the momentum was given by the all-round discipline in the wake of the Emergency proclaimed more than a year ago, augurs well for setting the Indian Economy on the way of sustained growth after many years of stagnation, After controlling the inflationary trend and enforcing a strict regime of price stability the economy is taking up threads of long-term economic development in a more congenial atmosphere than when the Fifth Plan was launched. The success achieved by the country in overcoming the grave economic crisis of 1972-74, characterised by stagnation, is an indication of its capacity to grapple effectively with crisis situations. The declining trend of prices during 1974-75 and 1975-76, the highly favourable prospects for economic growth in future, and the much greater emphasis on economic discipline since the launching of the NEW ECONOMIC PROGRAMME has now cleared the decks for the pursuit of a more purposeful growth-oriented strategy.

However challenging the tasks of planning for and maintaining a steady growth trend at the rate of 5 to 6 per cent per annum. the economy will face them with better confidence, than at any-time in the past years The first two years of the Fifth Five Year Plan had helped to stabilise the economy and strengthened the base for launching on a mere purposeful development strategy for the rest of the decade and the early Eighties.

One can hardly over-emphasise the vital role of an adequate mobilization of domestic savings for any meaningful resumption of an orderly growth process. Judging by past experience, excessive reliance on deficit financing for increased public sector outlays can be

Tendency of the Price During the Plan Periods

Index	Percentage changes during the Plan period over the year 1950-51							
	1951-52	1954-57	1960-61	1961-62	1965-66	1969-70	1971-74	1974-75
1. All Commodities	+6	—74	—69	—70	—60	—58	—38	—23
2. Food Articles	+7	—75	—71	—71	—59	—52	—29	—12
3. Liqour & Tobacco	+70	—76	—68	—71	—60	—70	—28	—13
4. Fuel, Power, Light, and Lubricant (Misc.)	—2	—85	—97	—82	—78	—78	—70	—70
5. Industrial Raw Material	+13	—77	—76	—72	—64	—65	—42	—37
6. Manufactures	+13	—70	—70	—65	—67	—60	—42	—28

Source: Reserve Bank of India, 'Price Trends During the three plan periods' Reserve Bank of India Bulletin, June 1967, Reports on Currency & Finance, 1950-51, pp. 147, 1961-62, pp. S17, 1968-69, pp. S26-27, and 1974-75, pp. 36-37.

counter productive and harmful. Our inability to mobilize adequate domestic resources in a non-inflationary manner has been a major weakness of our development process. As such, the acceleration of economic growth in a regime of price stability in the years to come is crucially dependent on our ability to work out new strategies for mobilising domestic savings

Public savings has a Key Role to play in rising the rate of investment, without accentuating inequalities in income and wealth. The continuance of compulsory deposits scheme has increased the purchasing power of rupee between 9 to 12 per cent in the various sectors. These deposits, are their savings invested at an attractive interest rate of 12.5 per cent, therefore, while they have saved for themselves, the purchasing power (real income) of the people has considerably improved.

The table below shows that during the year 1950-51 the National Income and Per Capita Income of Rs 9,530 crores and Rs 284 have increased to Rs 61,337 crore and Rs 340.1 and in percentage term there is an increase of 544 and 20 per cent in National Income and Per Capita Income respectively in the year 1973-74, i e on completion of Fourth Five Year Plan. It also indicates an equitable distribution of income and wealth. Keeping in view the growth of population from 361 million in 1950-51 to 574 2 millions in 1973-74, the indexes of Agricultural and Industrial productions are also showing an increasing trend from 96 and 100 to 131.6 and 200 6 respectively in 1973-74

Inflation and its role in Indian and the implementation of plans should be together taken. The best of plans can go wrong for lack of effective implementation. The Fifth Five Year Plan will be judged by the results that we achieve. There is imperative need to evolve an appropriate set of policies and procedures for implementation. The new directions given to development effort, the greater responsibilities assumed, and the magnitude of the tasks in certain vital sectors call for a consistent policy-frame tightly coordinated with implementation. The Plan, the policies, and their implementation must have the coherence and co-ordination of a well conceived military operation. The greatly enhanced outlays provided for in the Plan must not be allowed to be dissipated by inapropriate and uncoordinated policies and actions A necessary step in this direction is to translate the broad approach to the Plan into a detailed policy frame for implementation. It is proposed to devote concentrated attention during the next few months towards working out a consistent policy-frame encompassing agricultural policy, industrial policy, price-wage-incomes policy, policy for resources mobilisation, policy for regional balance in development, and management policies

At the present pace of project formulation, the scope for any such choice seems limited. In fact, in several long-gestation fields, not even as many well-worked out projects may be available as need to be included in the Plan One of the reasons for the poor performance of several key sectors in the Fourth Five Year Plan is that preparation and evaluation of projects and issue of sections was undertaken much after the Plan had been finalised and the projects concerned had been included in it. This experience must not be repeated. The Planning Commission should also keep a watch over this and monitor their progress closely. This is the most important follow-up action that needs to be taken as a matter of high priority. Hence improved project preparation will make for economy and speed in construction, and other policies, and measures would also be necessary, i .e , proper sequencing of projects so as to avoid bunching, avoidance of dispersal of financial and physical resources involved in taking up too many projects simultaneously, expeditious finalisation of arrangements for meeting the rupee, and foreign exchange costs, promotion of efficient construction organisation techniques and management practices, co-ordination, techniques and management practices, coordinated execution of interrelated phases, and elimination of bottlenecks in the supply and movement of construction material and equipment There is also a need for proper balance between the claims of indigenisation and considerations of speedy implementation.

As regards the proper utilisation of capacity of resources, the under-utilisation of capacity means so much waste of resources of the nation. It is particularly regrettable when the industries affected are those catering to the needs of essential consumption, high priority investment, exports and import substitution At present, the problem affects a substantial segment of the economy including such key and essential fields as Iron and Steel, non-cooking coal, fertilisers, engineering goods, power and oil transport, sugar, and irrigation. The Fifth Plan assumes a reasonable rate of capacity utilisation, particularly in sectors producing essential goods and services It can be noted here without any fear that bold initiatives are needed in institution building, policy making, and the adoption of procedures to create and utilise capacities in the key and essential fields An important factor for under utilisation of capacity is the emergence and persistence of inter-sectoral disproportions. Imbalances within individual enterprises are also a factor for under-utilisation of capacity. All these disproportions reflect weaknesses in planning, andefforts must be made for removing these weaknesses of our Planning growth.

(*Contd. on page* 24)

TABLE 11

Economic Indicators

Items	Units	1950-51	1973-74
1. National Income at 1960-61 prices	Rs. Crores	9.530—	61,337
2. Per capita income at 1960-61 prices	Rupee	284	340.1
3. Population	Millions	361	574.2
4. Index of Agricultural Production	1949-50=100	96	131.6
5. Index of Industrial Production	1950-51=100	100	200.6

Note: —On the basis of Final Report of National Income Committee 1950-51.

Sources: Third Five Year Plan, pp. 33-36 Reports on Currency and Finance 1974-75, pp. 12-13 India — 1953, pp. 188, India-1054, pp. 94.

Neyveli Lignite Co

Back on its Feet A

THE RETURN of the prodigal son is always an occasion for joy and happiness. So is the eturn of a public sector undertakig to lines of profitability. It is thereore good news for the people in eneral and the champions of the ublic sector in particular that the Neyveli Lignite Corporation has urned the corner. This key public ector project with a capital base f 160 crores rupees had accumulatd a loss of eighty crore rupees over he last 20 years and the nominal rofit of four crore rupees which he undertaking expects to make this ear is the first flicker of hope that he project will survive Not long go, just in 1972, the corporation vas in deep trouble with lignite production and power generation at he lowest ebb That year alone the oss was 14 crore rupees It was ecided to change the management nd the present team took over towards the end of 1972.

Two major reasons are responsible or the decline of this prestigious roject. The one was technical and he other concerned labour-management relations Any objective assessment of the situation would reveal he injection of extraneous political factors into the labour management relations subsequent to 1967 Here is a text book example of how party in power with little or no hold on the labour movement can, it minds, seek to secure its hold n the labour by the strength of its political position to the detriment of the health of a major development project. According to Shri Srinivasan, Chief Personnel Manager of NIC the crisis was precipitated by the active interference of the party in power with the labour movement. An atmosphere of frenzy and tension developed in the mine and factory site and frayed tempers were the order of the day. The supervisory staff and technicians responssible for upkeep and maintenance were abused and assaulted. There was go slow and overtime was demanded for overtime sake. The bill went upto Rs 25 lakh in 1972. Lignite production which once touched 4 2 million tonnes slided to less than three million tonnes. It was found that while the large number of the eighteen thousand and odd workers were more concerned with assured wages, a handful of less than a hundred employees held the nation's prime mover to ransom Any action against any one of them would spark off a crisis and result in a strike Thanks to the emergency the management was able to weed out these dangerous elements and restore calm and amity in the mine and the factory.

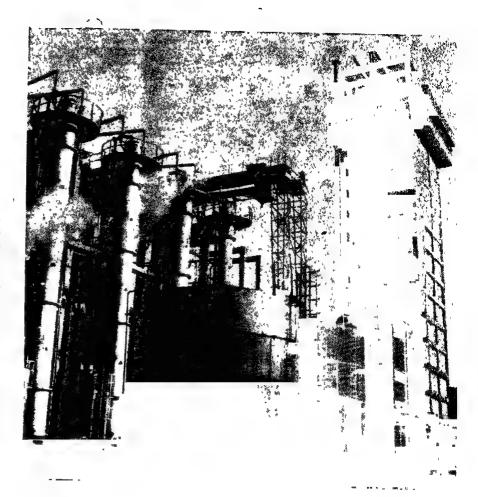
The Lignite Project at Neyveli into which Rs. 160 crores have gone, had accumulated a loss of over 8 crores of rupees in the last 20 years of its working. There was a time when it was teetering between life and death. But it is slowly coming back to life, as a result of strong measures taken recently. The future of Tamil Nadu is closely bound up with the future of this multi-purpose project.

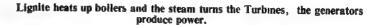
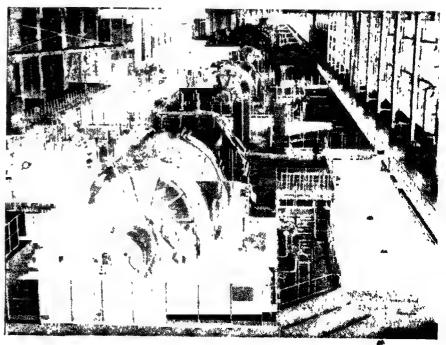
Hard soil excavated upto 70 metres is being moved out.

The other problem — technical-was equally serious if not destructive. The Neyveli Lignite Corporation was conceived as a composite project consisting of an open cast mine for lignite, a six hundred megawatt thermal station, a briqueting and carbonisation plant for the production of leco and other by-products and fertiliser plant producing urea With very few open cast mines having continuous mining equipment in operation in the world the choice of technology was limited to the West German one and the very first step the Neyveli Lignite Corporation took seems to have gone wrong. The giant bucket wheel excavators and the conveyor belts imported from West Germany were designed to mine and carry 6.1 million tonnes of lignite. According to the present management the excava-

ation

T. G. NALLAMUTHU

tors came across hard soil in Neyveli and therefore their capacity was badly affected The conveyor belts were also affected. Because of this the average lignite production was around 3.2 million tonnes as against 6.1 million tonnes. Only once did it reach 4 2 million tonnes. The thermal plant was designed to break even around 60 per cent efficiency but the fertiliser plant and the leco plant could break even only at a very high capacity utilisation. When the lignite production fell, it not only affected the thermal plant but it also affected the other two very badly. The problem was compounded by the fact that solid fuel gasification technology used by the fertiliser plant became obsolete and the Corporation suffered Rs 75 per tonne of urea produced. On the thermal side two of the nine units were converted to fuel oil base to overcome lignite shortage. It is from here the new management is trying to extricate the Corporation. In the last few years and particularly in the last few months concerted steps have been taken to increase lignite production and the result is 3.8 million tonnes, eight hundred thousand tonnes more than last year. With this the thermal plant has been worked to 58 per cent capacity producing 2,850 million units of power. The other two units are worked with minimum input so as as not to damage the equipment and keep the labour idle. According to the Chairman of the Corporation, Mr. Yegneswaran the present equipment and machinery cannot help increase production beyond 3.8 million tonnes. Therefore government have sancioned an expansion scheme which will bear fruit in 1980-81. The Rs 87 crore scheme means the installation of three sets of equipment each consisting of a bucket wheel excavator, conveyor and spreader. These equipment will help replace the existing ones and increase the capacity to 6.5 million tonnes by 1980-81. That will be the day when the project will realise its goal, because only then the leco

A part of the Lignite production goes to produce urea.

Lignite heats up boilers and the steam turns the Turbines, the generators produce power.

In a matter of minutes the excavators dig at one end and fill up excavations at the other

The final journey—towards power, leco and fertiliser

Giant bucket wheel excavators digging on black gold.

plant and the fertiliser plant can work to full capacity. Meanwhile the lignite based fertiliser plant is being converted to oil base so that the available lignite can be used in the oil fired boilers in the thermal plant.

The present Rs 87 crore expansion is only a short term remedy. With power shortage in Tamilnadu increasing year after year there is demand to set up a superthermal plant near Neyveli preceded by the second mine cut. The Corporation has already prepared a feasibility report for a 3000 MW station based on a seven million tonne lignite production. This according to Mr. Yegneswaran will cost Rs 650 crores, one hundred to one hundred twenty crore rupees more than required to set up a similar size thermal station based on coal at the pit head. But looking at the requirements of Tamilnadu which is already facing a shortage of 1000 MWs, a 1000 MW power station outside the state will yield only 900 MW after transmission. Besides with very little coal reserves to go by, we may have to have a second look at lignite in the future. At that time the cost of putting up a thermal plant near Neyveli will be very high, according to Mr. Yegneswaran. Meanwhile the Tamilnadu Government has set up a study team to consider the feasibility of setting up a thermal plant near Neyveli initially based on coal moved through the neighbourin Cuddalore port and then at a late stage will be switched over to lignite It will take three months for th team to report and a few mor months for the Tamilnadu Govern ment to take a decision Till tha time people in Tamilnadu and th rest of the country can be guardedl happy that the Neyveli Lignite Cor poration has come out of the red. ☐

WORKERS PARTICIPATION IN MANAGEMENT

ASOK GHOSH

EVEN AT THE risk of being branded as a romantic idealist, I perceive an actualisation of the lofty Philadelphia declaration of ILO: 'Labour is not a commodity' in the professed State policy of Workers' Participation in Industry enjoying a pride of place in the Prime Minister's 20-point economic programme. The sceptic would readily retort: What's so novel in the scheme—is it not an extension of the "Works Committee" concept of the industrial legality and is it not bound to meet the same ritualistic fate? To him my humble submission would be that there is a basic difference in the approach itself: the socio-economic forces released by the promulgation of emergency have generated an all-round sense of responsibility, awareness and involvement for productive pursuits; as a consequence, both labour and management have espoused the new scheme of workers' participation with emotional investment which was conspicuously absent in the case of the works committees.

Conceptually, the theory of participative management is based on dysfunctionality of the bureaucratic and Taylorian work-organisation on the one hand and on the other recognition of certain socio-psychological needs of the individual at the work-situation. This perhaps requires some elucidation which is offered below.

A bureaucratic system assumes (a) the corporate task can be successively split into smaller and smaller independent parts and (b) each unit or person should be allocated exclusively a single task-element. The consequences that follow are: (a) a single structure of relationship between units or persons i.e. superior-subordinate relationship; (b) a single demarcated functional boundary for each unit or person; (c) decision making is split from task-performance; (d) the top level is left with only decision-making and the bottom level is left with only task-performance. The fallacy of the assumptions and the inconsistency of the consequences with human motivation are quite obvious.

The behaviorist believes that man is a creature with great potential and is constantly in search of ways to develop himself. He naturally brings this aspect of himself to the work-place and expects his work and work-related experience to satisfy his development needs. Some such important needs are: (1) the need for the content of a job to be reasonably demanding of the worker in terms other than sheer endurance, and yet to provide a minimum of variety, (ii) the need to be able to learn on the job and to go on learning; (iii) the need for some minimal area of decision-making that the individual can call his own; (iv) the need for some minimal degree of social support and recognition in the work-place; (v) the need that the job leads to some sort of desirable future. According to the behaviorist the worker invests his energy and commitment to work directly in proportion to the degree to which he perceives his work and work-environment to satisfy his needs. The participative management seeks to integrate individual needs of development with corporate needs of productive operation and thus ensures that the same activities lead to both maximum organisational effectiveness and maximum need-satisfaction of the workers.

Underlying any scheme of workers' participation are two basic ideas: that there are two distinct groups of people in an enterprise – managers and workers, and that there are two exclusive sets of functions – managerial and operative. Managers are responsible for the work of their subordinates i.e., 'workers' who are accountable only for their own work. Managerial functions are essentially concerned with planning, organising, motivating and controlling in contrast with 'doing' or operative work. The workers' participation in management seeks to bridge this gap by authorising workers to take part in managerial functions. Theoretically, there may be three different forms of participation:

(a) *ascending participatio[n]* Workers may be given opportunity to infl[uence] managerial decisions at [higher] levels through their el[ected] representatives to W[orks] Councils or the Boar[d of] Directors. This may be [called] integrative participatio[n or] co-determination, as in Germany.

(b) *descending participatio[n]* Workers may be given power to plan and mak[e de]cisions about their own [work] i.e. delegation and jo[b en]richment, as in Swede[n and] Norway.

(c) *disjunctive participatio[n]* Workers may parti[cipate] through collective-ba[rgain]ing.

The scheme that has been [intro]duced in the country by the G[overn]ment of India, Ministry of L[abour] Resolution dated 30th October, takes the form of descending [parti]cipation as analysed above. T[o my] mind, in the socio-economic co[ntext] of our country this is by far th[e best] and most pragmatic approa[ch to] industrial democracy. Much [has] already been discussed by the [Go]vernment spokesmen, journ[alists,] labour leaders and profess[ionals] about the provisions in the sc[heme] and as such I don't propose to [dwell] on this aspect. In short, the sc[heme] is inherently flexible to acco[mmo]date varied situations in di[fferent] industries and basically pres[ents a] two-tier model: shop counc[ils at] the shop levels and joint coun[cils at] the enterprise levels. The co[uncils] are constituted by equal repre[senta]tives of workers and manageme[nt;] decisions in the councils are [taken] on the basis of consensus. The [areas] to be covered by the counci[ls are] production-planning, produ[ctivity,] welfare and safety measures, [deve]lopment of skills of workers, [work] environment and the like. [While] initially the scheme was appl[icable] to units employing 500 or [more] workers in manufacturing an[d min]ing industries, it is now made [appli]cable to units employing 100 o[r more] workers in commercial and s[ervice] organisations as well.

The factors on which the s[uccess] of a participation scheme de[pends] may be divided into situation[al and] human factors. While the situa[tional] factors like autonomy of an [enter]prise, size of an enterprise, str[ucture] of an enterprise and techn[ology,] terms and conditions of work [deter]mine the participation pot[ential]

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the human factors like workers' propensity to participate and management's acceptance of their participation determine how far this potential can be translated into reality. To these a third dimension may be added – role of the social scientist in creating appropriate social culture and social environment.

Shri Raghunath Reddy, Union Labour Minister, to a press conference on 5th January, 1977 announced that the scheme for Workers' Participation in Industry was received well both by labour and management. As an illustration, he quoted that till date the scheme was introduced in 472 establishments in the central sphere comprising 247 in the mining sector, 188 in the manufacturing sector and 37 in the departmental undertakings. In addition, the scheme was reported to have been implemented in more than 1000 units in various States. With its encouraging success in mining and manufacturing industries, the scheme is now extended to service and commercial establishments in units having a minimum work-force of 100. Shri Reddy also referred to the recent amendment of the Constitution which provided that the State would take steps by legislation or in other ways to secure workers' participation in management of undertakings, establishments or other organisations engaged in any industry.

So far as the state of West Bengal is concerned, the record is quite impressive. On the basis of the reports available till the end of December, 1976, the scheme has been implemented in 180 establishments of which 45 are in the public sector (central sphere), 5 are in the public sector (State sphere) and 130 are in the private sector. Out of the 8.8 lakh factory workers in the State, about 5 lakh workers are presently participating in management of the industry.

It is heartening to note that the scheme has not only made a quantitative impact but a qualitative impact as well. The spectacular rise in industrial productivity and marked improvement in industrial relations atmosphere are eloquent testimonies in this respect

I hasten to add at the same time that the workers' participation scheme may not be seen as an alternative to industrial disputes mechanism. In fact, for durable and meaningful operation of the workers' participation machinery, there should be a concurrent effective industrial disputes machinery. The former takes care of the co-operation aspect of labour-management relations while the latter deals with the conflict aspect. Any attempt to combine the two aspects into one instrumentality will frustrate the purpose. To be more specific, issues of vital concern to the workers may be distinguished as work-related and interest related The stategies to deal with the two distinct groups of issues should be necessarily different. Logically, the forums also should be different—one for joint problem-solving and the other for distributive bargaining. Our industrial relations approach so far has been based on the seemingly plausible but fallacious assumption that economic calculus is the only material basis of bipartite relations. The scheme for workers' participation recognises the fact that humanisation of work and job enrichment consequent upon re-design of work-structure, work-system and work-procedure on small group-norms is in itself a great motivational force While an effective bargaining machinery will reduce the area of conflicts, workers' participation scheme will act as a parallel instrument for the creation of work-culture and work-commitment, so vital for productive pursuits in a country like India which has accepted socialism as the ultimate goal. □

INFLATION AND PLANNING

(*Contd. from Page 19*)

The accelerated planning growth and a pattern of economic development weighted in favour of basic industries, agriculture, and social services require a basic change in the administrative structure and the leisurely procedures are incompatible with the fulfilment of the Plan tasks, hence attention needs to be given towards evolving an administrative set-up, and modes of functioning which can meet the challenge of the Plan.

A growing economy like India, must have sufficient flexibility in its price structure in which growth is most rapid. Hence, the inflation, adopted for the promotion of economic development, will be self-destructive due to the re-distribution of voluntary savings which will rapidly catch-up with investment. The price rise will also be halted when the additional out put of consumer goods made possible by the capital formation begins to reach in the market under all round *Economic Discipline*, and the Fifth Five Year Plan is much more than an internally consistent mathematical exercise It is also conceived as the rallying point for a supreme national effort in a decisive phase of our struggle for a *Self Reliant* economy, and as well as for *Social Justice*. This struggle is another war that our country has to fight and win, a war on poverty, dependence, and stagnation, and in any war, there will be difficulties and set-backs, but it is necessary to push them ahead with determination without any doubts, wavering, and hesitation. Success in this worthy struggle calls for *Discipline, Hardwork*, and *Sacrifices* from all sections of the population. The Fifth Five Year *Plan* must be truely a *People's Plan* in every sense of the term. □

Yojana Quiz

1. What is Earth Pillar?
2. Do our Brains work while we sleep?
3. What is Marianne to the French?
4. What is Adam's Apple?
5. The Seychelles, a cluster of 92 islands in the Indian Ocean, became an independent republic on
   (*a*) 3 September, 1939
   (*b*) 9 August, 1942
   (*c*) 30 July, 1960
   (*d*) 29 June, 1976
6. Name the Parliaments of the following countries:
   (*a*) Nepal
   (*b*) Iran
   (*c*) Afghanistan
   (*d*) Burma
   (*e*) Norway
7. Is a fly stronger than a man, comparing their size?
8. First woman to climb Mt. Everest is:
   (*a*) Junko Tabei
   (*b*) Margaret Thatcher
   (*c*) Yuri Gagarin
9. What do the following abbreviations stand for:
   (*a*) IA
   (*b*) IAS
   (*c*) IAAS
10. Which project is a joint venture of Haryana, Punjab and Rajasthan?

Answers :

1. Earth Pillars are singular geological formations—clay capped by stones. They are found in the Austrian Tirol, and elsewhere, and consist of tall pillars of earth stuck full stones and each surmounted by a large block of rock. 2. One part of our brain is working always, whether we are asleep or not. 3. Marianne is a French Christian name which the people gave to the guillotine during the Revolution of 1789. In memory of what the gillotine meant to them the French kept the name of Marianne as a symbol of the Republic. 4. Adam's apple is the name given to the lump in the front of the neck where the throat is. It began with the old nonsense which said that a piece of the apple which Adam ate stuck in his throat, and made this curious lumps. 5. (*d*) 29 June, 1976. 6. (*a*) National Panchayat, (*b*) Majlis, (*c*) Shora, (*d*) Pyithu Hluttaw, (*e*) Storting 7. The answer is certainly yes. It is by skill, made not by the muscles but by the brain, that man lives on the Earth—Skill, not strength.

8. (*a*) Junko Tabei a Japanese houswife on 16th May, 1975.

9. (*a*) Indian Airlines, (*b*) Indian Administrative Service. (*c*) Indian Audit and Accounts Service. 10. Beas project. It consists of Beas--Sutlej link and Beas Dam at Pong.

Quotation Box

I believe in taking people into confidence while taking any decision about the country. This has been done in the past and shall be done in the future too.

—Indira Gandhi

Terrible loneliness is also a great poverty. The hunger for today is for love.

—Mother Teresa

I am glad I am not a politician.

—Raymond Barre
Prime Minister of France

Science indicates that man is no more than a chance product of evolutionary forces which was neither preordained nor responsive to his aspirations.

—Dr. Raja Ramanna
President
Indian National Science Academy

American intelligence has, to be sure, come a long way since Pearl Harbour—but mostly in the area of technique rather than that of judgement.

—Far Eastern Economic Review

The dog has been man's friend since time immemorial but now man has become its worst enemy.

—Rukmani Devi Arundale
Chairman,
Animal Welfare Board

We have a long way to go before we can reduce even the grosser forms of social, economic, cultural, educational and regional inequalities that we now find in our midst.

—B.D. Jatti,
The Acting President

The PNA (Pakistan National Alliance) specifically pledged enforcement of *Shariat*—abolition of interest on all loans, stoning to death for adultery, cutting off hands for theft and public flogging for consumption of alchohol. Judging from the talk in the streets, however, the electorate is more interested in less spiritual things like the cost of living, land distribution and nationalisation of industrial and commercial enterprises.

—Salamat Ali
in Far Eastern Economic Review

The Wall-to-Wall Challenge

Take a close look at the inner wall of a bazar tube Running along its length will be a weld ridge Along this ridge, dirt and suspended particles in the water collect and finally choke the tube. The tube wall is also thin You naturally pay less for this tube but it will cost you more in the long run because it will not last long

Examine an ITC tube, popularly known as TATA pipe No weld ridge. Because ITC tubes are made by the Fretz Moon Process which causes the weld edges to be perfectly fused. The wall of an ITC tube not only has a smooth inner finish for free flow of water, it is made thicker for greater durability. You pay more for right quality—for longer years of trouble-free service

The strength of your tubes lies in the wall thickness

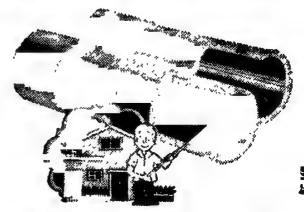
Correct wall-thickness of ITC tubes—complying with the specification IS : 1239 (Part I)-1973 —enables threads to be cut to perfect form, leaving adequate metal at the root. This ensures strong, leak-proof joints and greater all-round durability.

Protected against corrosion

The duration of protection given by zinc varies directly with the thickness of the coating applied. ITC galvanised tubes (G. I. pipes) have a zinc coating that always meets the requirements of the specification.

Stress-free

ITC tubes, made by the Fretz Moon process, are free from any kind of stress since the forming, welding and sizing are done in the hot state. Being hot finished, ITC tubes can be cold bent.

ITC - the most trusted trade mark in steel tubes

INDIAN TUBE

THE INDIAN TUBE COMPANY LIMITED

A Tata-Stewarts and Lloyds Enterprise

Performance Budgeting

Key to Control in Nationalised Banks

DR. B. P. SHARMA

This paper seeks to discuss the framework of performance budgeting that the management has set up in the State Bank of India. In doing so the author also raises other relevant issues of interest to students of banking.

What is Performance Budgeting

In any rapidly expanding and progressive industry, the management has to plan ahead, lay down targets and goals at different managerial levels, evolve reliable and acceptable standards for ensuring performance vis-a-vis the targets and take corrective steps in cases of unusual divergence between expectation and performance. For this purpose and to maximise productivity, it is imperative to exploit, assimilate and apply fully the latest tools of managerial science. Truly speaking big industries like banking are in urgent need of budgeting, inspecting, costing, auditing and research[1] Towards this end, the establishment of systematic channels of performance budgeting has assumed significant importance. In simple terms performance budgeting "is primarily a planning and control system."[2] Further, "The common object of performance budgeting is to formulate policies aimed at an objective established after the consideration of the probable course of events in the future, and to provide a means for the constant comparision of actual progress towards this goal against the preconceived results."[3] Performance budget considers the matters extending over drawing up of a business plan furnishing adequate details on important aspects of the business and fixing targets in various fields of the business concern. The actual performance of each unit is evaluated periodically to ascertain the variation with budgeted levels, and appropriate corrective measures initiated in time to bring the performance in line with the planned growthlevel.

Pivotal Role

With the increasing intervention of the Government in the economic life of the nation to attain rapid growth based on social justice and self-reliance, it is worthwhile that the budgets of a public sector concern should serve a variety of objectives in addition to ensuring accountability and financial control. It is no longer adequate if the budget assists the executive in controlling the expenses or in ensuring that the instructions of the Government have been carried out In fact, the budget should serve the management in the execution, co-ordination and control of their different activities and plans and in taking correct decisions Mr. David Klein has aptly remarked: "It seems, therefore, better to plan the budget to meet a desired set out goals. This will force the planners to formulate explicit goals and design the budget in such a way as to help in attaining them"[4] What is more, it should assist the top executives to know what the organisation is performing, at what cost and with what consequences? What is needed most is that the budget should reflect the comprehensive programmes of the undertaking with detailed line of action. Budget should be an operational document which will translate long-term and annual plans into an action programme, integrating the financial as well as physical targets of each activity. It requires such budget which will not only demonstrate, who spends the money and on what item, but also include functions, programmes, activities and schemes to help determine effective and economical allocations for the programmes and projects. It means, function-cum-activity classification budget is urgent need of the hour which should be based on the organisational units with the objects of expenditure suitably woven into it. This approach to budgeting is the key note of a new technique in budgeting known as 'Performance Budgeting'[5]. The performance budget lays great stress on estimating the fiscal requirements as well as expending funds on the operating units Periodical reviews are conducted to observe how the performance matches with the budgeted claims of a unit and remedial actions initiated.

Banking and Performance Budgeting

The significant part that performance budgeting can play in banking requires no reiteration. In fact, the urgency for establishing performance budgeting in banks was never felt so keenly as after nationalisation of 14 major banks in July 1969. In the past, geographical spread of their offices was mainly confined to bigger cities and towns and the functions were of a routine nature without proper planning for credit and resource mobilisation. It will not be an exaggeration to say that in a tradition-bound banking system performance budgeting had a little significance In this context, Shri R K. Talwar, Ex-Chairman, State Bank of India rightly observed that "although budgeting is not a new concept in the industrial world, its application in commercial banking is quite recent even in foreign countries"[6] Even today the bank management in general is averse to recognise the importance of performance budgeting in its broader perspective in India. The Administrative Reforms Commission in its report submitted in 1968 recognised its potentiality as a tool of result-oriented administration and recommended its adoption at the earliest possible date in the public undertakings.[7]

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Currently, budget is no longer regarded as a mere "statement of the needs and resources" of a bank or "a plan adjusting expenses during a certain period to the expected income for that period" but has come to be recognised as one of the most effective managerial tools of planning, coordinating, controlling and evaluating performance leading to remedial measures.[8] The orthodox concept of "imposed budgets" have been replaced by "participating budgets" and it is widely accepted that budgeting if practised in 'Sport spirit' should contribute crucially to managerial effectiveness, as well as harmonious inter-personal relations in bank management

A Guide to Action

The importance of budgetary control and performance budgeting can easily be judged from the views expressed by Banking Commission in its report submitted in 1972 The Commission correctly emphasised that "operational efficiency can be achieved through a proper planning of the year's activities sufficiently in advance and by fixing targets for performance and income, and limits for expenditure This requires preparation of budgets and establishment of a good system of budgetary control."[9] The performance budget is not an end in itself, rather it is a means to the end of work accomplished. For the sake of achieving better results, bankers should further analyse the targets in the light of the prevalent policies of the bank and the monetary authorities

In the sphere of banking, performance budget not only help in attaining targets but also ensures a direct control on different income and cost factors, probe into the causes for the deviations from targets and take remedial action if so desired Besides, it promotes a feeling of cost-consciousness and restricts expenditure to the bottom; inspires healthy competition between branches and aids in reviewing present policies and deciding future course of action.

Methodology of Performance Budgeting

Now the question arises what methodology should be adopted with regard to performance budgeting? Should we prepare budget for one-year or two years or five-years or ten years Broadly, a budget should cover three phases: (a) There could be a perspective budget covering, say, upto ten years indicating the broad pattern of growth envisaged (b) There could be a medium-term budget covering 3 to 5 years so as to provide a concrete shape and reality to the goals set (c) Then there could be one-year budget which essentially is a programme of action to be executed during the year ahead All these three tiers of budgets have their utility in a banking concern and one without the other, might lead to either lopsided budget without a concrete programme of execution Mr. Willsmore has appropriately remarked: "You cannot plan a business piecemeal."[10] For instance, it would be hard to put through a programme of action which extends beyond a period of one to two years, because several new developments and other imponderables might intervene. Nor can a department or branch manager be asked to implement a long-term performance budget since there could be changes in the staff and in the persons holding responsibility for such implementation On the contrary, to operate all business expansion programmes purely from short-term angle might result in roadblocks because the inter-relations between the varied sectoral budgets may not be properly coordinated

In preparing Performance Budgeting it is better to adopt two distinct approaches first, the budget may be prepared in respect of each item of banking business like deposit growth, credit and branch expansion etc. and projections may be made in respect of each one of them By aggregating them, the overall budget for the bank as a whole can be got. Secondly, there is the unit approach —the budget for the bank as a whole is the aggregate of the budgets for each region and these, in turn, are the aggregates of the budgets for each branch. As such, the branch budgets constitute the basic unit and these are used to produce the budget for the entire budget viz., master budget. Finally, the budgets prepared separately should be compared for the purpose of checking the correctness of the estimates made

Pre-Requisites

In order that budgets slhpou help the management effectively, they should be built around the following pre-requisites :—

(i) *Pre-planning* . Pre-planning phase of the budget function culminates in a broad operating plan for the year. It is developed from the two basic sources of data (a) environmental factors and (b) company objectives. This plan is issued to the operating departments for the developments of their individual plans and budgets to accomplish the objectives.

The pre-planning phase of budgeting consists of work which must be done in the last half of the year preceding the budget year in order to provide the framework for budget preparation. During this period an analysis is made of previous experience, the state of the economy and objectives set for the banking institution Bankers always concern themselves with economic and industrial trends and as such they take surveys of past performance, polls of business opinions and forecasts made by economists, into consideration while setting the mood for next year's performance budgeting. This budget preplanning activity is akin to the long-range operational and financial planning activities which must take place in an increasing number in every major bank of the country

According to Mr. Sherman Adams of First National City Bank important measures which are essential for performance budgeting preplanning by banks would cover [11] (i) establishing objectives, (ii) determining and defining the problems, (iii) outlining alternative course of action (iv) collecting and evaluating information bearing on all the alternatives and courses of action, (v) deciding among the alternatives and selecting a course or courses of action, (vi) formulating necessary derivative plans and step by step programmes, and (vii) follow-up control over the implementation of these programmes and measurement of the progress achieved from time to time All these steps are basic to successful budgetary planning in banks and, hence, should be taken note of by the budget director and the Chairman of the bank

(ii) *Decentralisation* Decentralised administrative set-up is the other pre-requisite essential for the successful implementation of performance budgeting scheme. As far as the State Bank of India is concerned, it has bifurcated the whole country into nine sectors where Local Boards of Directors have been appointed for smooth functioning of the banking operations. With this change in the management system, it is hoped, the branches in these regions will make greater progress in attaining targets set under budgets.

(iii) *Management Information System :* Since the effectiveness of performance budgeting for solving

the problems and attaining greater efficiency depend on the timely availability of relevant information, it is essential to buildup a comprehensive and integrated information system. The State Bank of India ((SBI) therefore, established a fullfledged MIS Department at its central office, Bombay on Nov. 1, 1975 by converting the MIS Wing which was functioning since early 1974 This MIS would provide data needed by the management in decision-making process. In addition to routine data processing applications, the Bank's Computer is being utilised increasingly as a significant adjunct to the Management in its decision-making function The SBI has also developed computerised functional information systems for deposits, advances, branch information and for reciprocal business as regards to Correspondent banks The Bank has also designed an information system for small scale industrial advances.

(iv) *Training Facilities :* In a service industry like banking, a major input is a trained and contented work force Hence, training of staff at all levels is regarded by the Bank as one of the most significant pre-requisites for the efficient working of performance budgeting For this purpose SBI runs a Staff Training College, at Hyderabad and 28 training centres for junior clerks in the country Training was imparted to 8,217 clerks and 6,239 officers during 1975 at different training centres of the Bank.

In order to meet the organisational requirements and to utilise the training facilities to the best advantage, the whole training strategy of the Bank has been reviewed in depth by an expert committee. The Bank's Training College introduced modern training techniques in all courses for improving managerial skill of the Bank's officers and clerical staff. At the level of officers, techniques of modern management, decision-making and budget-oriented functioning are being stressed. The ideas gained in different programmes would prove useful not only in improving the industrial relations but also in achieving the targets fixed in performance budget. Cordial and harmonious relations are maintained with the staff and periodical bipartite discussions are held with concerned Staff Federations to achieve Bank's objectives and settle issues affecting the service conditions of employees which were 1,06,493 at the end of 1975.

Advent of Performance Budgeting in SBI

The system of performance budgeting was first introduced in the State Bank of India by its ex-chairman Shri R K Talwar, in 1971. Similarly the concept of performance budgeting was adopted in Syndicate Bank in 1973 by its Chairman Mr. K.K. Pai. The activities of performance budgeting in SBI can be divided into three phases:

(i) Preparation of yearly Performance Budget
(ii) Mid-year review, and
(iii) Performance Appraisal.

Preparation of Yearly Performance Budget

The yearly performance budget of SBI reviews the last year's performance, sets targets for the current year and makes tentative projections for the coming year Quantitative as well as qualitative targets in respect of critical areas of Bank's operations such as growth of deposits, expansion of credit, branch expansion and recruitment programme, plans regarding training facilities, earning and expenses etc. are submitted by each divisional manager. These plans are compared with the previous year's performance and then approved budget and the significant deviations for the current year are evaluated and explained. The accounts department consolidates divisional plans and prepares a summary of profit and return on investment as well as targets regarding deposits for the SBI as a whole.

The Chairman of the Bank has one unyielding policy: The Bank and its branches must demonstrate improvement from year to year. An improvement is specifically related to better profits and more efficient performance on all fronts. These yearly budgets are discussed by the budget officers with the Chairman and if the overall consolidated picture is found unsatisfactory, the same are returned to divisional managers for improvement in respect of cost reductions or other improvements to achieve the desired level of profit or increased level of deposits. Thereafter, revised budget plans are submitted which acts as the operating budget for the next year. Thus the main purpose of the annual performance budget is to set targets to be included in the next year's performance budget, the preparation of which begins four to five months in advance.

The annual budget for the Bank is further broken into quarterly/monthly and weekly budgets so that the performance could be measured periodically against these pre-set goals and timely corrective action might follow. The management control system based on such a scheme of annual budgeting is expected to provide proper direction in regard to the Bank's activities and make the operating staff more conscious of what is expected of them in regard to business, costs and profits.

The Mid Year Review

The chief aim of the mid-year review is nothing but midcourse correction of the targets set forth in the annual performance budget. The revision if necessary, is done on the basis of actual experience gained during the last six months and also on statistical data collected so far. Divisionwise income, profits and loss are also depicted. The mid-year review is completed by the end of September, when it is printed and then the revised budget becomes operative for the next six months.

Performance Appraisal

The appraisal system consists of a series of periodical reports which assist the bank management keep constant watch on the progress of the operations against the budgeted targets and remedial action initiated wherever nessessary The performance appraisal system consists of :

(i) a weekly report; (ii) a monthly report; (iii) a quarterly review and audited profit and loss statement and balance sheet; and (iv) the annual reports and accounts.

All these reports aims at:

(a) maximum disclosure consistent with the interests of the bank;

(b) minimum of details consistent with proper explanation of events.

(c) clairty, simplicity and consistencey of presentation to encourage assimilation ; and

(d) attractiveness of layout to engender interest.

(i) Weekly Review Report

Weekly reports are prepared by the Central Accounts Section. It includes a brief note on the progress and further prospects. All the managers of the different departments meet to discuss this report. The performance of the week is compared to the targets. Shortfalls, if any, are talked about and corrective measures suggested. The weekly

meetings play an important role in the performance evaluation system. It is a useful means to keep the Chairman aware of what is happening in the bank.

(ii) **Monthly Review**

The monthly reports are consolidated from the weekly reports by the central Accounts Section and are sent to the Management Service Division which put them together and and disseminates the final report. Monthly reports which reflect the progress of the working (a) position of deposits, (ii) cash flow statement, (c) activities of each branch etc. (d) manpower position, and (e) loans advanced to different sectors, are submitted to the management along with the datum as per the Budget and also with the figures of the corresponding period of the previous year This enables the management to find out well in time whether the progress of deposit mobilisation, credit planning etc is satisfactory and whether the implementation is proceeding according to plan, customer service is being maintained well upto the mark and budgeted targets are being achieved Here, we can hope to improve upon this report in the coming years by adding the monthly profit and loss account also

iii The Quarterly Review

Quarterly accounts including balance sheet and Profit and Loss statements duly audited and certified by the Chief Internal Auditor are being presented to the Board of Directors. The report also contains the following information :—

(a) Audited profit and loss statement of the quarter as compared with the data of the corresponding period during the period year;
(b) Chief Internal Auditor's Reports (in brief), notes forming part of accounts;
(c) Aggregate deposits (demand and time) received division-wise;
(d) Loans advanced to industry, priority sector etc. division-wise,
(e) Investment in Government securities;
(f) Reports on the special activities of divisions,
(g) Cash position during the quarter;
(h) Overseas operations;
(i) branches opened; and
(j) Progress of Merchant Banking Division.

iv The Annual Accounts

The Annual Accounts and reports prepared by the Central Accounts Section do not need to be elaborated upon since the form and structure of the same are well-known The consolidated accounts duly audited are presented to the shareholders in the annual general meeting. Every year, a fresh look is given to the techniques employed in performance budgeting and improvements are made wherever possible and care is also taken to see that the committee meetings do not become monotonous and stereotyped. They are kept lively with discussion on current problems. Annual meetings are held at different local headquarters so as to know intensively about local conditions and attributes. Such meetings have been of great help in decision-making process regarding local projects and problems.

Main Constraints

In Indian banking system, there are a number of constraints with regard to performance budgeting For instance, the branch expansion programme of the banks is not design ed for maximisation of profit but conditioned by the larger national interest, viz, to create the infrastructure essential for the rapid economic growth of the backward regions Every bank has to open branches in the Lead Districts compulsorily even though the branches may not earn profit in the short-period. But in the long run, the development of these districts is bound to spell prosperity not merely on the local community but also on the bank itself

Secondly, the interest rates which bank charges on various categories advances do not enjoy that degree of dynamism as in foreign countries For example, it is necessary to charge lower rates of interest from exporters in order to stimulate nation's exports What is more, the concessional rates of interest charged to agricultural borrowers as well as small-scale industrial loans are designed to help these classes to enhance their investment in these neglected sectors.

Thirdly, the amount of investments which each bank makes in government securities is a fixed percentage of the deposits.

Fourthly, as regards expenditure, the major single item is interest remitted to depositers. It is pertinent to note, that interest paid on different types of deposits are fixed by Reserve Bank of India taking into consideration the need to prom genuine savings.

Fifthly, one of the most imp tant aspect of performance budg ing in banks in developed countr is profit planning. American ba rate profit planning as one of th most valuable tools of manageme Profit planning implies the system tic working out of the policies to followed and the steps to be tak to achieve certain well defined jectives. State Bank of India be a nationalised bank, maximi tion of profit is not its sole a Besides, its profit cannot be ba on exploitation and imbalan growth of the country S B.I a lacks efficient system of account and efficiency-cum-propriety a to minimise overhead expens Thus, there are many constra which banks in India including have to face with regard to the formance budgeting of income, penditure and net profit etc

Suggestions

Banks in India have just co menced thinking about drawing of performance budgeting majority of the banks, the organi tional set up for such an exercise only in the process of being creat Hence, Indian banks will have take guidance from foreign ba regarding the appropriate form organisational machinery a techniques most suitable in draw up performance budgets. In t respect following observations co be of great practical guidance:

(1) The top executive of bank should be the key m in a bank's budgetary pr ramme; without his coo ration, the budgetary pr ramme would not get off feet. Every chief execut has plans for the operat of his business and the bud system is the means by wh he can formalize and publ such plans and observe performance of his line ma gers in carrying them o
(2) The Line Officers sho allocate some time to budg ing, even though their ca bility as doers than plann is more significant to bank.
(3) The Budget Director of Bank must possess a com nation of talent and perso qualities so as to seek support of the top execut on the one hand and suffici cooperation from key l officers, on the other.

(4) The Budget Department should be small enough to justify its continued existence.

(5) It would be folly to expect impressive results immediately. But it is certain that performance budgeting is bound to make a big difference in the long run.

(6) It is true that bank's budget must be made by bankers themselves. But outside consultants could be of great help in providing an objective appraisal of bank's competitive strength and weakness. Their services may be utilised in studying particular problems in such spheres where sufficient expertise is lacking among the bank's staff

(7) The scope of planning, organisation, staffing, information system etc. regarding performance budgeting will have to be carefully thought out in order to avoid mistakes to the minimum.

(8) Conferences of budgetary officers of different major banks may be organised from time to time to discuss the problems and exchange experience for mutual advantage

(9) The exercise of performance budgeting should be simplified. The system should be based on the highest possible level of motivation rather than on 'pressure device tactics' to goad bank employees to greater efforts.

(10) One of the main dangers to be avoided in practical use of performance budgeting is the pitfall of taking budget as something fixed and immutable. The budget is a planned course for the future and that course must be reshaped and reset as necessary to deal with developments that may arise on the journey.

Conclusions

The system of performance budgeting is no longer shun in SBI as unnecessary work or as redtape imposed by the financial hierarchy but they have welcomed it as a real help in management function. But bugeting is still to penetrate into the lower level of the organisation so as to earn rich dividends. SBI has accepted the principles of management by objectives and self-control and thus has paved the path for adoption of new patterns of management to attain desired goals and accelerate productivity. In itself, this is no petty achievement.

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Discipline and Economic Development

(Contd. from Page 16)

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Many developing countries are fortunate enough to own good mineral deposits; these must be developed in the first instance. An undeveloped deposit contributes nothing while lying undisturbed. It is economical under today's prices and technology. Tomorow is uncertain. Both the parameters may change rendering a deposit obsolete. It is only in exceptional circumstances a deposit should be allowed to remain dormant to be used at a future date, says

A. M. HUSSAIN

MINERALS AND DEVELOPING ECONOMICS

RESOURCE ECONOMISTS contend that the presence of natural resources is not essential to economic well being and development of a country, but they also realise that the smaller a country's stock of capital and the skill of its labour force, the greater will be the importance of its natural resources, for they provide a ready made stock of capital which can permit the country to leap over the years that would be required to accumulate the same stock of capital out of income.

Most of the developing countries have, indeed, smaller stock of capital and a vast force of unskilled labour. In fact, all the three basic factors of production i e, land, labour and capital are inadequately developed in these countries. The land in most cases is worked by primitive methods, offering a marginal living and contributing little in the way of surplus which might serve as a spring-board for development Labour may be in great surplus but is limited in skill and in the concepts of entrepreneurship. Capital is limited in supply, and is slow in forming due to the inability of the people to accumulate savings, and the lack of any tradition of investment. In the developing economies, it is in the upliftment of these aspects that the role of minerals assume a far greater importance than what is generally realised.

Financial Benefits

Once mineral development has begun, benefits to the producer country take many forms. The most direct and apparent contribution is direct income in the form of profits from government held corporations or taxes and royalties from other operators. The general trend is that most governments try to maximise these benefits through expansion of production and through increasing the tax or royalty rates.

The developing countries need a rapid and sustained increase in export earnings to cover the imports of capital goods and to service their foreign borrowings, and the contribution of mineral raw materials to export earnings of these countries is surprisingly high. Statistics shows that some 45 per cent of the value of imports from all developing countries by developed countries generally consists of metals and fuels Thus mineral exports lessen the 'balance of payment' constraint and increase the rate of growth of the economy.

Besides the above, minerals offer other financial benefits. Most of the sales income of the producers goes back into the economy to pay local wages, to purchase supplies and materials and in some cases, it returns as new funds available for additional local investment.

Infrastructure

Mineral development has to be served by a modern infrastructure—transportation facilities, communication, power etc. Many mineral deposits are remote from settled areas and the development of such deposits involves the construction of a complete infrastructure which may include railroads, roads, airfields, ports, power facilities and townships. This has been done in many parts of the world such as in the development of copper deposits of Congo, Chile and Peru; tin deposits of Bolivia; iron ore deposits in many parts of the world and oil-fields of the Middle-East. There is no doubt that the development of infrastructure has contributed significantly to the economic health of the region but it must be borne in mind that the infrastructure created to serve mineral development is a special infrastructure designed perforce to serve mineral production alone, for in isolated areas other economic activities are generally lacking. The other side of the picture may be that the planners in their anxiety to maximise mineral production may overlook serving other economic developments. Hence thoughtful planning is essential to see how best even that capital which is available only for mineral development in a fixed region can be supplemented so that the infrastructure is so designed that it sub-serves multiple economic activities, if possible.

A Paradox

It is readily apparent that the impact on a region from isolated development is not as great as it would be if a mineral deposit were located in a less isolated areas. It is a paradox that many important mineral producing regions, over a long time, have remained backward. For example managanese has been mined from Balaghat and Bhandara districts, India, for about a century. Similarly, Shingbhum and Keonjhar districts have produced iron ore for a long time. But the standard of living of the Gonds and Santhals of these areas have gone up only marginally

However, there is good deal of scope to introduce careful planning so that regional development is also accelerated. In evaluating such situations much more attention could be paid to the possibilities of increasing the economic linkages through which certain materials and supplies needed by the mining operations are produced locally. This not only

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ssists in creating manufacturing units but also increases the degree of integration of mine into the economy of the region.

Scientific Outlook

Beyond the immediate gains mentioned above, mineral development also provides an environment that will accept and encourage development It is a well known fact that economic development must involve the application of scientific concepts and techniques The population of an area which has developed scientific thinking is expected to be more ready for development than the others The acquirement of scientific outlook, however, is a long process and requires exposure to scientific techniques and thinking over a long time. When mineral development takes place people are indeed exposed to scientific techniques and hence, more adaptable to changes.

If the mineral development planning provides for the training of local people, it is rendering a service of critical and long run importance By creating technicians, the industry is helping in the creation of a receptive attitude towards scientific thinking which will ultimately tear asunder the deep rooted traditional thinking and will form a springboard for economic development To gain quick results trainin should be imparted from supervisory level downwards including electricians, metal workers, mechanics, machine operators, etc

Opportunity Cost

Having assessed the importance of the development of mineral resources, it is fit to examine briefly the financial implications of these developments. Economists have noted that there are certain types of activity in developing countries that lend themselves to local investments as opposed to activities, including mineral development, which are better suited to foreign investment Local investments generally are better used for labour intensive activities that are geared to meeting local needs and have a quick and early pay back, whereas foreign capital can be employed more effectively for activities which are capital intensive, dependent on export markets and characterised by a high degree of technology and risk. Mineral development has a long gestation period, is capital intense and risky and qualifies for foreign capital A number of sources are available which should be judiciously tapped by developing countries A major source of external capital for many purposes is the international agencies of which by far and away the most important is the International Bank for Reconstruction and Development. This agency, however, have made only a few loans for direct mineral development i.e. to Chile and India for coal mines, to Gabon for manganese and to Mauritania to develop iron ore properties. The Bank on the other hand, have done much to help the construction of infrastructure services and processing facilities that draw on mined raw materials. The World Bank also has two affiliated organisations; the International Finance Corporation can make loans to private corporation without government quarantee, and the International Development Association can make loans to less developed member countries on very liberal terms, which may involve no interest payment. The World Bank also assists local Development Banks, created in almost all the countries of the world, with credit or technical advice

The smaller international banks concerned with supporting development are the Inter-American Development Bank and the Export-Import Bank of Washington. These banks have given valuable assistance to mineral based projects in South America and Africa.

The banks generally do not come forward to finance mineral exploration programmes due to their risky nature The United Nations Development Programme (UNDP) has been doing worldwide work in this field by providing foreign exchange financing and lending teams of highly qualified experts to carry through projects assisted by support personnel and local currency costs from the host country National agencies in Germany, England and the United States have provided similar assistance in mineral exploration on a much lesser scale than the UNDP programme.

Local Consumption and Exports

The developing countries are not eminent in the consumption of minerals and metals at present but they have the potentials of enhancing their consumption in future years. The growth in consumption will vary with population and the rate of advance of the economy. India, Indonesia and China comprise the most densely populated areas of the world, and it so happens that these countries also contain the most advanced technological societies of the world outside the Western countries and Japan. China is on the verge of massive industrialisation and so is the case with India and Indonesia. If the billion people who live in India and China increase their per capita consumption of steel and copper to 25 per cent of that of the United States today, it would require an approximated 50% increase in iron ore and copper metal above current world level of production.

In view of the rising trend in consumption especially in those countries which are technologically sufficiently advanced, there will be a growing tendency, and rightly so, to conserve their mineral resources for their own use rather than to export them to other countries. A word of caution, however, needs to be mentioned. Generally speaking there are three consecutive stages in the evolution of most industries that use natural resources The first or primitive stage is one where man exploits a resource by taking what nature offers, with little use of capital or energy other than manpower. The second stage is capital — intensive The third stage is one in which man controls the natural environment and applies the cheapest technology to natural resources in order to obtain a particular consumer good or services Many phases of agriculture are already in stage three where there is mass production at a site chosen by the producer. The technology exists to control other forms of renewable resources such as fish and forests. Because of the physical and geographical characteristic of economic mineral resources, mineral recovery is more firmly fixed in stage two than most other natural resources, but there is little doubt that we are moving towards the stage of control of environment in the case of minerals as well The second stage has been with us for a very long time. When we reach the third stage there will be a shift in the structure of the market from today's backward integration in which consumers of raw materials tend to move back to control their sources of raw materials, to a future situation where consumers will have many alternative sources of supply and alternative materials from which to choose. Producers of raw materials will have to integrate forward in order to assure a market for their materials. The major plank of this thesis is that in future minerals will be recovered from the total processing of low grade rocks that are found in abundance throughout the world.

Books

By Passing the Signpost

;overnmental Systems and Deve-)pment *by V.A. Pai Panandikar*; *'opular Prakashan, Bombay*, 1976; *'ages XIV* + 124, *Rs* 22.

[T IS COMMON knowledge that, there is in operation in contemporary India what the sychologists call "mutual mapping rocess" between research institu- ons and the administrative set- p of the country which are meant) work in close cooperation for evelopmental purposes. However, ot infrequently due to the low 1gree of involvement in each other's fairs, it is only the perceived 1anges of administration rather 1an the intrinsic ones that form the 1bject matter of reorganisational 1ggestions emanating from detached dividuals and their organisations. he present critical study carried 1t under the auspices of the ICSSR 1pear to be an exception. Its pur- ose is to launch a programme of 'ojects during the Fifth Plan period order to suggest proposals of search in the area of governmental stems and development.

As a preliminary effort to identify :y issues for research directed to- ards the solution of policy and 1plementation problems, the 1thor has classified them into nine. hese are· (i) legislative adminis- ation; (ii) judiciary administra- on, (iii) citizen and administra- on; (iv) administration; (v) local 1ministration; (vi) public enterprise; i) agricultural administration; ii) industrial administration; and i) social sience administration. 1e common term used elsewhere z "economic administration" is t mentioned in this list probably cause it is taken as subsummed 1der other headings. This point is t without its interest in so far as e word administration can be upled with practically every field activity engaged in by govern- ental functionaries. Indeed, the 1st administrative structure used for llection, tabulating and analysis data in the country might figure 1der a different heading "adminis- ation of statistics" for which a parate central service is also in 1stence.

The division of various services s been followed up by respective 1apters with introductory notes, 1d an exhaustive bibliography co- ring 77 pages. The thought model hind this research project and its design might merit attention prior to the examination of its main con- tents. The fundamental issue in the study of governmental systems of development has been stated as "the manner in which the Government organises itself for the identification and formulation of development policies and their implementation. Taking stock of the massive amount of literature on the subject the author adopts four criteria for the priority areas. These are: (i) social relevance of the area; (ii) criticality of the area; (iii) likely impact and benefits of the study to the citizens; and (iv) areas of large scale public develop- ment expenditures whose study may add better administration. The areas of priority have been further de- marcated as the following: (i) policy making in development; (ii) bureau- cracy and development; (iii) public sector as an instrument of develop- ment; (iv) citizen participation in development; and (v) rural develop- ment and administration Each one of these broad areas gives rise to several questions and these have been listed. Without the active in- volvement in day-to-day adminis- tration, it must be admitted that the capacity for detached philosophical musings is difficult for most persons to abstract the contours of the Kalei- doscope. However, since most writers on development adminis- tration follow the general syllabi anchored on political liberalism and the current literature on the subject they do not face much difficulty in this task.

The book may be in some respects characterised as a study in the metho- dology of development adminis- tration, a phrase that became hot currency during the last two deve- lopment decades. As a programme of projects for the Fifth Plan period and as a prelude to the formulation of specific projects, the author's classification is unmistakably use- ful and thought provoking. How- ever, the danger implicit in similar programmes is the bypassing of signposts in which the current issues have reached their cross-roads. The unfortunate part of this story is that the viewers of our variegated landscape abroad have succeeded in magnifying the rot in the inters- tices of our organisation while at the same time assigning only subor- dinate roles to us in the large hiera- archy of global development. Far from asserting our achievements, the reactions of most writers have been prominent in the submissive acceptance of these viewpoints.

The documentation listed in the book is not of uniform quality or standard of excellence. Practically, the entire gamut of literature on the subject listed is the product of both well-considered as well as laboured efforts of writers in ad- ministration to speedily study the dimensions of various local or state problems for seminars etc. It is known that integrated thought in regard to all-India matters get vitiat- ed by the patchy terms of references of committees and commissions re- sulting in only ponderous tomes. The swing of the pendulum is bet- ween ideological poles, the practice of mixed economy and romanticism in economic planning caught bet- ween keynesism and *Real Politik*. Quite a large number of the articles in the journals listed and not a few books themselves are pressurised products of ghost-writing but stri- dently authored to capture a place in the galaxy! A good many are pedestrian and lacking in depth. The task of distilling this conven- tional wisdom set before himself by the author is, therefore, at once a metaphysical exercise of a formi- dable magnitude. That this vast scale of feverish activity has been halted during the last one year is a fantastic phenomenon by itself because in every conceivable direc- tion Government became truly and administratively developmental only during the last 1½ years.

Administrative development here is basically an elitist concept in the socio-cultural setting of India and other Asian countries. If we do not overlook the essentially democratic coverage in recruitment policies of all the various sectors of India, what would appear to need atten- tion in terms of development is the grooming of the governmental func- tionaries to minister to the needs of the citizen. This is the meeting point

for both in the fields of the many-sided development process. There can be no One Dimensional Man *qua* administrator belonging to one service Paradoxically enough the authoritarian impress of government and the drawing of sustenance from it deludes the functionaries to view anything but their own self-aggrandizement as a matter of dull routine. It is unlikely that even the interesting psychological studies based on these problems under the U N auspices has assisted in national policy formulation meant for removing the canker of subjective egoism.

A systemic view of the functioning of Government ought hereafter in the light of the 20-Point Programme, to concentrate on horizontal linkages at the socio-economic plane and not so much of the vertical hierarchy and in this respect the author's programme of projects of the areas of priorities, if they are not to lead to a further accumulation of tendentious thought, has to eschew the familiar cliche-ridden development literature seeking to promote elitism and get down to the brass tacks. Otherwise, the dark alleys to which a wrong classification might lead will spell journeys of no return to future generations. Policy research could mean in this context, not merely the study and analysis of the courses of action taken in the past, but the outlining of programmes for future action devoid of the mistakes committed earlier. This, no doubt, requires some negative thinking in the sense of looking beyond the objective reality of the person and also the breaking away from conventional wisdom according to which the way of seeing things in governmental system is also a way of living for good

—B.N. Nair

Tips for Trade

Asean Market for Select Engineering Products; *Indian Institute of Foreign Trade Ashok Bhawan, 93 Nehru Place, New Delhi-110024, Pages 17-194; Rs* 35

THE ASEAN market, consisting of five neighbouring Asian countries, namely Indonesia, Malaysia, the Philippines, Singapore and Thailand, is one of the most flourishing markets in the world, its trade turnover having increased from US £ 13 5 billion in 1970 to US £ 45 5 billion in 1974 With a total trade turnover of £ 174 million with the ASEAN countries in 1974 75, India's participation in the expanding ASEAN trade is but a drop in the ocean. Considering that geographically these countries are our natural markets, ASEAN is but a classic example of our losing gainful trade opportunities to distant competitors like the USA, Japan and the European countries

The IIFT Report, *ASEAN Market for Select Engineering Products*, is in this context an imaginative attempt to break the spell of drift Based on personal interviews with or information sought through questionnaires from 150 manufacturing and exporting units in India and a 4-week overseas investigation in the ASEAN countries by a 3-member research team, it bears the imprint of a painstaking work in a hitherto rather unexplored field

Lest the observations and findings in the Report should degenerate into generalities, the IIFT delimited the scope of the Report to gathering market intelligence in respect of individual ASEAN member-countries in respect of only selected engineering product-groups, namely, (i) autoparts and accessories, (ii) bicycles and parts, (iii) diesel engines, (iv) electric motors, switchgears and controlgears, (v) handtools and small tools, and (vi) textile machinery.

The Report is packed with commercial information about the sales prospects of these product-groups and the ways and means of improving them in the ASEAN markets Analysis of each market in respect of the selected product-groups provides down-to-earth practical information on important factors like market characteristics, domestic production, trade classification, import tariff, distribution channels, retail prices, packaging, delivery schedules, terms of payment, sales promotion etc. The Indian business community would thus find in it practical tips for a growing and diversified trade with the countries constituting ASEAN The manufacturers and dealers in these product-groups will, therefore, do well to take advantage of them.

—Anita

Economic Planning

Indian Economy *by I C. Dhingra and V.K. Garg, Sultan Chand and Sons, New Delhi; Pages* 134; *Price Rs* 4

Indian Economy by *M S Rao; Primer Book Co, New Delhi, Pages* 749; *Price Rs* 15

Micro Economics by *K P Sundharam and E N Sundharam, Sultan Chand and Sons, New Delhi, Pages* 635; *Price Rs* 16 50

IN MODERN times economics has become a popular subject Large numbers of students take up this subject The teachers begin their lessons with definitions of economic terms, which are painfully memorised by the students and subsequently forgotten in the examination hall That is why a good percentage of students are also afraid of this subject Moreover a student who has prepared well and has acquired a lot of information may not get high marks in the examination for his failure to answer each question to the point Writing answers correctly in the examinations has a special technique Fortunately these text books have been written by persons who have to their credit considerable experience of teaching senior students of economics including the students who are appearing for professional competitive examinations All the authors are either paper setters or examiners for a number of universities of this country and as such they have considerable ability to give model answers to the questions and guidance to the students.

Shri Dhingra and Shri Garg have specially discussed the happenings of the last one year and their impact upon Indian economy. In Unit-IV the performance and achievements of the 20-Point economic programme have been added.

Shri Rao has included many new topics of current interest including 20-Point economic programme.

In Micro Economics the authors have tried to meet the requirements of the students' by discussing the Price Theory at great length. The objective type questions to test the students' understanding will prove to be of advantage to them

—N.N. Chatterjee

Development Notes

Udayagiri Tribal Development Project

An outlay of Rs. 39.49 million from the State Plan will be spent on the G Udayagiri Integrated Tribal Development project in the district of Phulbani in Orissa during the current Plan period. This project covers Raikia, Tika ali, G Udayagiri and Chakapadu Tribal Development Blocks.

The main programmes undertaken for this project are Agriculture, Horticulture, Soil Conservation, Cooperation, Animal Husbandry, Forestry, Drinking Water Supply, Communication and Education

Under these programmes, 3580 families will be supplied with agricultural implements, 1484 families with bullocks and 1500 families with goat and pig units respectively About 1000 acres will also be taken up for plantation of Mango, Gauva and Jack fruits etc Priority has also been given to provide drinking water facilities to the Tribal hamlets for which 78 open wells and 51 Tube wells will be sunk The project envisages opening of 275 primary schools and upgrading of some primary schools and for giving better education facility to the tribals.

The most notable achievement of this project is laying of horticultural plantation over 332 acres of land previously under shifting cultivation

Tawa Project Gathers Momentum

Work under the Tawa Project in Madhya Pradesh was speeded up under the 20-point programme As a result, 338 metre long approach canal, which was to be completed by October 77, was completed in June 76

The construction of 26 metre high double D-shaped well, proposed to be completed by October this year, is now to be completed by February. Work on the 3960 metre long tunnel is progressing satisfactorily and excavation work in 3200 metres has been completed so far

Earth work on 3600 metre exit canal is progressing fast. Work has also started on a 60 metre long and 8 metre high pucca anicut and is expected to be completed by the end of the year. Thus, the various construction works under the Tawa right bank canal division, proposed to be completed by 1981-82 are expected to be completed by 1979-80

The Rs 63 47 crore Tawa project on completion, will irrigate 2.47 lakh hectares of land in the Hoshangabad district, thereby raising the area under irrigation in the district from 3% to 60% and bringing in an additional production of 23 lakh tonnes of foodgrains

Safety Device Against Overheating of Diesel Engines

Two engineers of the Punjab Agricultural University have developed a safety device against overheating of diesel engines used by farmers for pumping water. The device is simple and can be manufactured by village artisans at a price of Rs. 20. It stops the engine within 15 seconds of the stoppage of the cooling system

Over 60 per cent of pumping sets installed by farmers on shallow wells are water cooled, water being taken from the delivery pipe of the centrifugal pump to which the engine is fitted. Sometimes if the belt slips or the coupling breaks, or an air leak develops or the water supply pipe gets disconnected, the pump fails to lift water and there is no cooling The engine, however, continues to run although it is not doing any work but is getting heated all the same. This can result in serious damage to the engine Apart from loss of money irrigation of crops is disrupted which again results in poor yields

Farm Fuel Units in M.P.

With a view to providing multi-purpose facilities to the consumers 11 farm fuel centres are now operating in Madhya Pradesh.

These centres have been opened by the oil companies at their suitably located petrol pumps in rural areas Essential commodities like fertilizers, seeds, cloth, drugs, edible oil, torch cells, cycle tyres and tubes, kerosene oil, petrol, diesel, toilet goods etc. are sold at these centres.

The 11 centres now functioning in the State are located Bari (district Raisen), Badnawar (Dhar), Padora (Betul), Bhind, Shivpuri Kalan Anjad (W. Nimar) Babai (Hoshangabad), Piplea (Mandsaur), Satna, Mandi Bamora (Vidsha) and Ganj Basoda (Vidisha).

More such centres are to be set up in the State in the near future.

Indian Scooters for Italy

The public sector Scooters India has concluded an agreement with Lambretta Europe of Italy under which the Italian company will undertake the distribution of the products of the former in Europe.

The agreement is valid for an initial period of five years and the Italian firm has agreed to place orders for a minimum quantity of 5,000 scooters and 1,000 three wheelers in each of the two years 1977 and 1978. The annual cost and freight value of export is about Rs 3.10 crore.

It is hoped India would be able to export scooters soon to the U.S which at present import motor cycles from mainly Japan The U.S. specifications are rather very stringent but it is hoped the Indian expertise would be able to meet them and sell atleast one lakh scooters to the U S. per annum

Underground Water Programme

The Union Ministry of Agriculture and Irrigation has estimated that about 4 million hectares of additional irrigation has been achieved from minor irrigation schemes till now under the National Programme for use of underground water started during the Fifth Plan. The target for 1977-78, is 1 7 million hectares which makes it likely that the Fifth Plan target of 6 million hectares will be exceeded by 1978-79.

The outlay on minor irrigation from Government sources for the year 1977-78 is Rs 185 crore, Rs 35 crore more than the previous year Correspondingly the institutional investment is also likely to increase to Rs 285 crore in 1977-78 as against Rs 235 crore in 1976-77

The Central Ground water Board is also helping the State Governments in the development of groundwater resources by undertaking macro-level exploration and surveys During the current year the CGWB has located three artisan acquifers, one in the Karaikal area of Pondicherry, the second in Ramanath-Puram, Tamil Nadu and the third in the Banganga River basin in Bharatpur, Rajasthan It is expected that initial development of ground water in these areas would be possible without involving any consumption of energy in lifting water

Co-ops Bring Down Prices

Mizoram is probably the only State which has revitalised co-operative societies for the successful implementation of the 20-point economic programme While the wholesale cooperative societies have taken the responsibility of supplying the manufactured goods of mass consumption, the Apex Marketing Society deals with the consumer goods As a result, the prices of essential commodities have fallen by about 25 per cent during the emergency period

The societies have spread their wings to all district and sub-divisional headquarters. In addition there are 115 service societies functioning in remote villages with their own transport to ensure a steady replenishment of their stocks. The co-operatives have lent a helping hand to local farmers by purchasing ginger—the only cash crop grown on a mass scale—worth Rs 1.5 crore on a remunerative price eliminating middlemen

Weaving is a part of the daily life of a Mizo. The State Government has started a crash programme to promote this handicraft through 10 weavers' service centres, with each centre having an equal number of fly-shuttle looms which will be available to the weavers at 50 per cent subsidy.

20-Point Programme in Midnapore

Under the 20 Point Economic Programme 1,44,897.62 acres of land have so far been distributed for agricultural purposes amongst 2,62,849 persons in Midnapore district, of West Bengal Of these 83,720 belong to Scheduled Castes, 57,729 belong to Scheduled Tribes, 22,364 are Muslims and 99,036 others.

Under the programme for distribution of house-sites to landless labourers in rura areas, 1,578.67 acres of land have been distributed amongst 30,286 persons for homestead purposes Persons belonging to Scheduled Castes land Tribes comprise approxima-

tely 52.7 per cent of the beneficiaries A Crash Programme for construction of huts has also been taken up Till now, 1,255 huts have been constructed and it is expected that 3,500 huts would be constructed within the current financial year

Under the West Bengal Acquisition of homestead land for Agricultural Labourers, Artisans and Fishermen Act, 1975, 1,302 squatters occupying 68 405 acres of lands have been identified and benefit of the said Act has been extended to them

Steps have been taken to liquidate rural indebtednets in the district.

World Bank Loan for Agriculture

The World Bank has agreed to approve a five-year project for agricultural development in Orissa costing $ 40 million Through the execution of this multifaced project, the agricultural production in the state is expected to increase rapidly According to World Bank experts a minimum rate of return of 20 per cent can easily be anticipated on this investment of $ 40 million

So far the state government received World Bank loan to the tune of Rs 3 crores only through the Agricultural Refinance and Development Corporation for ground water exploitation although Rs 130 crores has been sanctioned on this head The three-member delegation of the Orissa Government had recently been to Washington to negotiate with the World Bank on the agricultural intensification project

Fruit Trees for Rural Areas

The Department of Rural Development, Ministry of Agriculture and Irrigation has launched a special programme in 451 Community Development Blocks all over the country for planting quick-growing fruit trees on a large scale in the rural areas This programme, forms a part of the Applied Nutrition Programme (ANP) under the department which ensures a regular supply of nutritive foods to rural children, particularly those belonging to the weaker sections

To begin with these trees are being planted in school compounds vacant community lands and other waste lands The Department is also collaborating with the Agriculture Department and it has been agreed that the Social Forestry Project should also supplement the nutritional requirements of the rural people

Arabs Offered Drug Technology

India is prepared to assist the Arab countries both in setting up drug units and transfer of technology, training of technicians and strengthening of research and development efforts It will be glad to offer them expertise and knowhow in the field of production of drugs and medical appliances and help them develop their own capabilities to meet the growing health requirements

Such a step would be in consonance with the objective of exchange of technology among developing countries enunciated by the United Nations Industrial Development Organisation (UNIDO)

Indian drugs worth Rs 450 million were being exported every year to a number of countries including some advanced ones The Arab countries have the right parameters to establish and develop their own drug industry and become self-reliant ultimately They had adequate funds for investment and the level of per capita income being high, there is a ready market for modern drugs

HEL Crankshafts for DLWP

Crankshafts for diesel locomotives are now being manufactured indigenously in the shop floors of the Heavy Engineering Corporation This has resulted in a saving of foreign exchange worth at least Rs 15 million a year Costing $ 10,000 (about Rs 1 lakh) a piece, they were in the past imported from the United States by the Railways Diesel Locomotive Workshops at Varanasi. Since the installation more than a year ago of the French-made fibromatrix RR machine for dieforging, all parts of the crankshafts in the forge shop of HEC's foundry forge plant, the import was confined to crafkshaft blanks

So far, 64 crankshafts made out of imported blanks have been supplied to DLW. HEC has now started manufacturing the blanks and the first batch of crankshafts of total indigenous manufacture are in various stages of production These will be delivered soon to the Varanasi workshop

At present, HEC has got firm orders for 156 crankshafts. Order for another 135 is expected at an early date.

The fibromatrix RR machine specially designed by a French firm to suit the 2,650-tonne press in the forge shop cost HEC nearly Rs 10 million India is probably the fifth country to produce crankshafts through this particular process called the RR process, the others being France, Britain, Japan and the United States

Watch factory in Joint Sector

The Andhra Pradesh Industrial Development Corporation (APIDC) has decided to set up a joint sector watch factory in the State at Shadnagar in backward Mahaboobnagar district at an estimated cost of Rs 50 million The unit will provide employment to nearly 900 persons The project is being planned at the instance of the Union Government in line with their "crash" programme for raising the level of production of wrist watches in the country on a priority basis

World Bank Loan for Agriculture

The Work Bank will provide a loan assistance of 14 2 million dollars (about Rs 128 million) to the West Bengal government for its ambitious "agricultural research and extension project' The total cost of the project was about 28 million dollars (about Rs 250 million)

The project was very basic and vital to reorient the whole agricultural operation composed of three parts research, training and extension It would be implemented in five years Under this project research would be conducted on cereals, sugarcane, oil seeds and water management to provide better information to farmers. A team of 4,000 village level workers would be deployed for extension work so that excellent liaison was maintained all the time with farmers A large number of subject matter specialists would also be appointed under this project

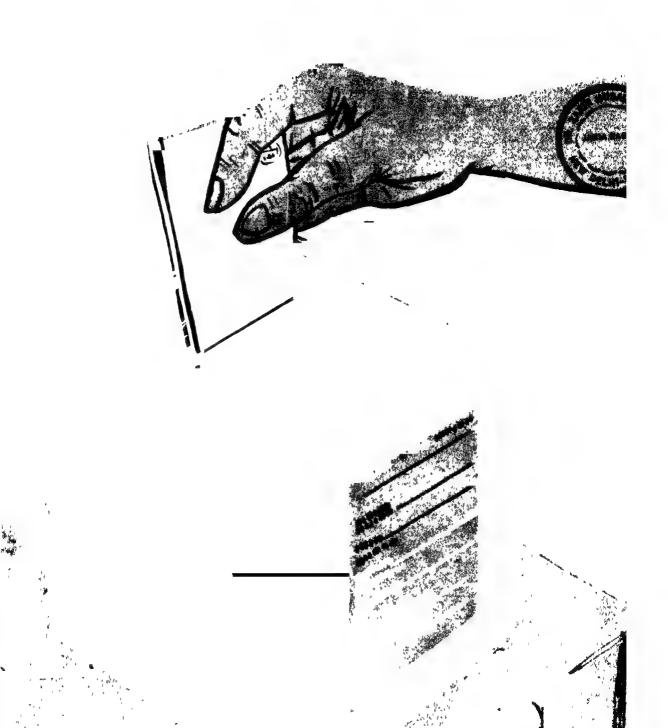
Indian Coal for EEC Countries

Italy, West Germany and Holland have for the first time, placed orders for Indian coal Belgium Denmark and France were the first three countries of the European Economic Community to import Indian coal With these three additions, Indian coal will now go to six EEC countries during the current financial year Italy has ordered two lakh tonnes of coal while West Germany and Holland have indented 25,000 tonnes and 20,000 tonnes respectively The first shipment of coal to Italy has already left Paradip port

Coal exports to the EEC countries are expected to pick up in a big way during 1977-78 Most of the coal is expected to be shipped from Haldia port after the commissioning of the mechanical loading system before the end of the current financial year A four member delegation of Coal India Limited and the MMTC is on a visit to Europe to negotiate contracts for export of about 1 5 million tonnes of coal in 1977-78 and for a similar quantity in 1978-79

Copper Project Approved

The Malanjkhand copper project in Madhya Pradesh has been approved by the government and will now be implemented by Hindustan Copper Ltd , at a cost of Rs 919 million The first large open pit mine in hard rock, the project is expected to produce two million tonnes of ore which will yield 23,000 tonnes of copper This would not only help copper production but also develop the tribal and backward district of Balaghat in Madhya Pradesh The development of the mine envisages a preparatory period of 16 months and ore production of one million tonnes annually (yielding 15,200 tonnes of copper) is to be achieved after four years, while the two-million stage will be reached in six years

A concentrator plant is also to be set up at Malanjkhand to treat two million tonnes of ore, although the first stage will cope with one million tonnes Current demand for copper is about 55,000 tonnes annually and is expected to rise to 60 000 tonnes by 1978-79 To meet this, a number of other projects such as the Rakha mine expansion, the Ghatsila Smelter expansion etc—are being undertaken.

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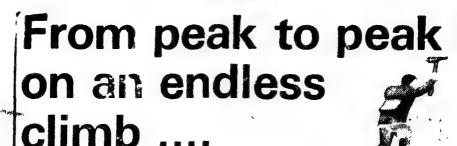
Printed at Universal Advertisers E/2, Jhandewalan Extn, New Delhi-110055 and Published by the Director, Publications Division, Patiala House, New Delhi-110001

YOJANA
Volume XXI Number 5
New Delhi
April 1, 1977
11 Chaitra 1898

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Y o j a n a seeks to carry the message of the Plan, but is not restricted to expressing the official point of view.

Chief Editor
S. SRINIVASACHAR

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Editorial Office : Yojana Bhavan, Parliament Street, New Delhi-110001. Telegraphic Address : Yojana, New Delhi, Telephones: 383655, 387910, 385481, extensions 402 and 420, Circulation : Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription ; Annual—Rs. 18, Two years—Rs. 22, Three years—Rs. 31, Foreign Subscriptions : One year—£1.30 or $4.00. Two Years—£2.20 or $7.00. Three Years—£3.10 or or $9.50 Single copy—six pennies or $0.20.

EDITORIAL

VERDICT OF THE PEOPLE

IN a nation's history a time will always come for heart searching, and the people who remain at the receiving end of the administration process will bide for the moment of judgement. For us that moment came with the historic decision of Shrimati Gandhi to seek people's frank verdict in regard to the highly controversial 20-months old emergency during which citizens' freedoms were severely abridged in the name of development and progress. The people gave the verdict after a momenteous and keenly-fought poll in which more people participated than ever before in India's 30 years of parliamentary democracy. The verdict returned after six weeks' hectic electioneering rendered a stunning blow to all those who had taken political authority for authoritarianism and who naively believed that progress could be achieved through bulldozers. To people in other parts of the world – who were being led by their own media to believe that India's vast, illiterate electorate was a gigantic rubber stamp, the shrewdness and maturity of the Indian voter has come as a great surprise. The average Indian has shown that no politician can take his support for granted. This election to the Parliament has proved to be the most effective, single piece of education to both the elector and the aspiring politician.

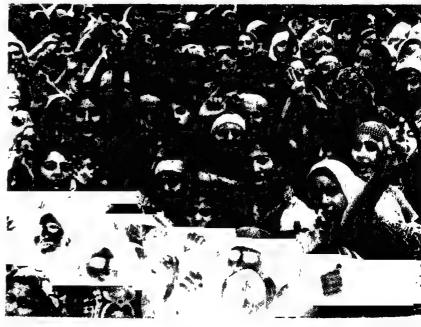
There are a few salient features of the general election which should not be missed by a student of democracy. India has the biggest electorate in the free world, numbering over 320 million adults and spread over thirty one States and Union Territories. Language, religion, caste and economic status exist as artificial but superficial barriers among them. The entire process of election conforms to clearly defined rules made under the Representation of People Act. The Election Commission, an independent, statutorily established authority, directs, controls and supervises the elections in a manner that ensures maximum possible freedom and fairness at every stage of the election process. The credibility of the Election Commission in the eyes of the public is a fundamental prerequisite for the functioning of a democratic society and India can well be proud of having evolved an institution that answers to exacting requirements of fair and free elections. The secrecy of the ballot, the freedom of the candidate to campaign within the established law and the unimpeachable impartiality of the election machinery are the main ingredients of our faith in democracy and the people of India can well be proud that this faith has been vindicated in all the general elections they have gone through. India

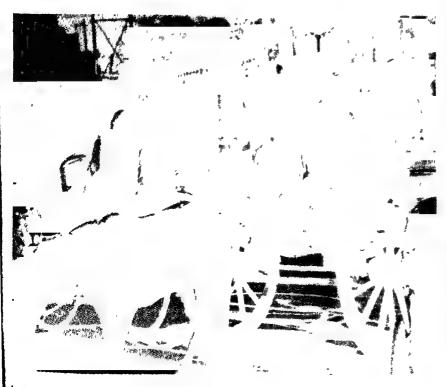
Shri Morarji Desai being sworn in as Prime Minister of India by the Acting President Shri B.D. Jatti. An Octogenarian whose health and looks belie his age, Morarji was a stalwart in India's freedom struggle and is one of the great living Gandhians. In what will undoubtedly go down as the most crucial and historic general Election that the country has seen, the Janata Party, consisting of various shades of opposition, put up a united front against the Congress Party led by Smt. Indira Gandhi and won, and Morarji was unanimously electrd to lead the government. With the swearing in of the new Prime Minister and his colleagues the accepted democratic norms which had come under eclipse during the emergency have again come into full play, restoring man's faith in man.

has also proved, through all these six general elections, that the doubting Thomases who placed a heavy premium on formal literacy stand disproved. The Indian voter, whether he can write or not, is a shrewd person who knows what democracy means to him and what it is like to exercise his option without fear or favour. It must be said to the credit of the campaigners and the leaders on both sides that no matter how harsh they were in the criticism of the opponent, they respected the dignity of the individual and directed their broadsides to the principles and policies pursued by the opponent. The political parties and the candidates have, by and large, observed the code of conduct prescribed by the Election Commission.

This does not mean that there have not been minor lapses. From some parts of the country reports did come that the list of the electorate was not complete. Many within the voting age found themselves left out. In a few booths over-enthusiastic workers indulged in malpractices which got themselves promptly reported in the press. In most of these cases, however, corrective action was taken by ordering repoll. But when compared to the vastness of the country and the undertaking, such incidents were like minor ripples and they were hardly able to influence the final outcome.

As these lines go into print, the new government has been sworn in with Shri Morarji R. Desai as India's fourth Prime Minister. This is an

The jubilation of the students in the victory of the Janata Party highlighted its popularity among the citizens of tomorrow. The youth played a crucial role in electioneering with their main slogans built round the concept of the citizens' freedom.

The victorious candidates of the Janata and CFD assembled at Mahatma Gandhi's Samadhi in Rajghat, Delhi, to take the oath of loyalty to democracy in a dramatic gesture of commitment to the principles to which the Father of the Nation had dedicated his whole life. The oath was administered by the saintly leader of the opposition movement, Shri Jaiprakash Narain in the presence of Shri J. B. Kripalani, another great stalwart of the freedom struggle.

With most of the leaders freshly released from prison and with very little time and resources to prepare for the elections, the workers of the Janata Party relied heavily on the justness of their cause and their own capacity to carry the message to the electorate by whatever means at their disposal.

event of historic significance for India and its democratic traditions. For the first time we have a government which has been captured, through the peoples' overwhleming verdict, by the opposition. Much of the aura that enveloped the Indian National Congress as an organisation which secured for India her freedom and brought parliamentary democracy into being has worn away. The people are less sentimental and more pragmatic. They know what is poverty and they will continue to suffer its consequences if inevitable; but they see no inevitability in the loss of basic freedoms which give life and content to democracy and the dignity of the individual. They have also realised that economic development itself, if it has to be purposive cannot divorce itself from the basic human freedoms. Politics cannot be over-simplified into a struggle between bread and freedom. Loss of freedom can mean, and does often mean loss of bread.

So, if there is a single lesson that the people of India have taught the arm-chair politician or the demagogue, it is this: economic development is a social process and as such what the government does through its impressive plan schemes must find implicit sanction in the minds of the people who will be its beneficiaries. Corruption and authoritarianism are the twin evils that erode the dig-

Many urban localities presented a festive appearance with party flags strung into festoons and the enthusiastic young men in trucks and horse-drawn carriages shouting slogans, calling upon the people to reject the old government and vote for the opposition.

nity of man and even bring the development process to disrepute. What the people want, besides end to poverty, is endto chickenery and the innumerable artifices that seek to present the future of an individual or individuals as the future of the country.

The Prime Minister has already indicated that a fresh look will be taken at the Fifth Plan; that infructuous government expenditures will be stopped; that prices of commodities will be brought down and that the problems of poverty and unemployment will get priority of attention. These are indeed major objectives that can put any government to test. The unprecedented enthusiasm that the electorate has shown in bringing a new party into power and the impeccable moral and intellectual character of its leadership should give us hope that tomorrow will be better than today and that India will emerge as a still more united nation involved in an endless process of economic development and social change.

The villages, with their literate, semi-literate and illiterate voters, evinced unprecedented enthusiasm in the elections. A wave of dissent, not unmixed with disgust, swept the countryside practically throughout the north. Punjab, Haryana, Uttar Pradesh, Madhya Pradesh and Bihar voted solidly for the Opposition party, belying the expectations of political pandits. The picture above shows the party agents distributing identity slips to voters.

Below: In a village in Bastar, a tribal area, the voters assembled in a disciplined manner to cast their vote. The women turned up in large number to exercise their franchise

HOW THE PARTIES FARED IN THE POLL

In the recent general elections to the Lok sabha, the Bhartiya Lok Dal secured 43.17 per cent of the total votes polled. The Indian National Congress secured only 34.54 per cent of the votes, the lowest-ever secured by the party It had received 43.68 per cent of the votes in 1971, 40.73 per cent in 1967 and 44.17 per cent in 1962.

The maximum number of votes polled by the BLD was in Haryana where it secured 70.35 per cent folled by 68.15 per cent in Delhi, 68.03 per cent in Uttar Pradesh, 56.13 per cent in Chandigarh, 66.21 per cent in Rajasthan, 65.01 per cent in Bihar 58.37 per cent in Himachal

Close-ups of voters, casting their franchise. Old men, women in burqa, the housewife with the child in her arm the 21 year-old tribal going through his first experience in voting, were some of the familiar slights at the polling booths.

Below: A huge, illuminated board set up before the Shastri Bhavan in Delhi anncunced the poll results as they kept coming throughlout the day and night.

Pradesh, 57.95 per cent in Madhya Pradesh 51.77 per cent in Orissa, 49.54 per cent in Gujarat, 44.44 per cent in Pondicherry, 39.84 per cent in Karnataka, 35.78 per cent in Assam, 32.39 per cent in Maharashtra, 32.33 per cent in Andhra Pradesh, 31.81 per cent in Dadra and Nagar Haveli, 21.46 per cent in West Bengal, 17.83 per cent in Tripura, 17.67 per cent in Tamil Nadu, 14.70 per cent in Goa, Daman & Diu, 12.98 per cent in Punjab, 8.58 per cent in Manipur; 8.49 per cent in Jammu and Kashmir and 7.20 per cent in Kerala.

The Congress party secured the maximum number of votes in Lakshadweep with 58.59 per cent, followed by Andaman & Nicobar Islands 58.54 per cent, Andhra Pradesh 57.36 per cent, Karnataka 56 74 per cent; Arunachal Pradesh 56 34 per cent, Assam 50 56 per cent; Nagaland 48.32 per cent; Maharashtra and Dadra & Nagar Haveli 46.93 per cent each; Gujarat 46.92 per cent; Manipur 45.31 per cent; Goa, Daman & Diu 39.98 per cent; Tripura 39.74 per cent; Himachal Pradesh 38 30 per cent; Orissa 38.18 per cent; Mizoram 37 07 per cent; Meghalaya 35 92 per cent; Punjab 35.87 per cent; Madhya Pradesh 32.50 per cent; Rajasthan 30.56 per cent; Delhi 30.15 per cent; West Bengal 29.39 per cent; Kerala 29.12 per cent; Chandigarh 28 37 per cent; Uttar Pradesh 25.04 per cent; Bihar 22.90 per cent; Tamil Nadu 22.28 per cent; Haryana 17.95 per cent and Jammu and Kashmir 15.20 per cent

Out of a total electorate of 320 million, 60.54 per cent votes were polled this year as against 55.29 per cent in 1971; 61.33 per cent in 1967; 55.42 per cent in 1962; 47.84 per cent in 1957 and 45.67 per cent in 1952.

The BLD had contested 404 seats and captured 294 seats. Besides, 19 candidates fought on the Cong.(O) symbol in Tamil Nadu and Pondicherry and 3 were returned. The Congress had contested 493 seats and it captured 153 seats including two un-contested seats in Sikkim.

The biggest ever democratic election to be held anywhere in the world. India's Fifth General Election was, except for minor lapses, the most orderly peaceful exercise of people's verdict. The ballot boxes were sealed in the presence of the Candidates' agents and with their seals, and preserved in well guarded places before they were opened for counting. The counting itself was done by Government staff in practically a fool-proof manner, to the satisfaction of the candidates themselves.

All record of industrial development pales into insignificance when compared with the rapid industrial growth witnessed during the first two decades of the planned development. There was a time when even ordinary consumer goods like tooth-paste and razor blades had to be imported. India has acquired over the years considerable sophisitcation in industrial products. The pace of development in the industrial field has been rapid and significant. This country is not only at present producing and exporting light engineering goods, but also sophisticated machine-tools, machinery and components like switch-gears, transformers, valves etc. While almost all groups of industries contributed to this increase, the growth has been particularly marked in the newer and more complex industries.

An important feature of industrial growth in the country after Independence has been the rapid expansion of the public sector, says

Dr. Amar Nath Dutta

New Horizons Of Industrial Growth

THE INDIAN ECONOMY has received a new look up Today changes are pronounced not only in respect of the functioning of industrial enterprises all over the country but also in the very pattern of industrial growth which has been continuing for decades together. It is this very process of change and the way in which the economy is making headway that will have a positive impact on the future industrial growth in the country The emergence of a strong and viable public sector has been the precursor of this dynamic process of change.

The Reserve Bank of India in its recent report has observed that 'the nation's economy in the current financial year is expected to reach higher levels of capital accumulation and growth without impairing price stability'. To the extent the report is optimistic, indications are already available that it will be possible to maintain and accelerate the tempo of growth in the changed context which was not possible two years ago when the economy was at 'cross roads'. It is quite significant that the economy has shown definite improvement within a limited span of time.

The positive trends that have emerged by now have to be evaluated in the light of the dismal record of the past three years. Inflation has been controlled. Agricultural production has taken a favourable turn. The overall working of the industrial sectors, in spite of pockets of depression, is showing positive improvement. The capital market has regained the tempo that was sadly missing for some time. And the most important factor is the emergence of the public sector with such positive gains that it envisages a new sectoral-mix in the country's economy.

Dr. Amar Nath Dutta is Research Officer, Indian Chamber of Commerce, Calcutta.

Keeping in view the Fifth Plan needs, a series of measures were adopted to gear up the functioning of the industrial machinery and the special facilities for diversification allowed to machinery, machine tools and electric equipment industry were calculated to impart flexibility to the production process. In pursuance of the economic programme announced by the Prime Minister, the Government reviewed the question of further relaxing and simplifying the licensing policies The two-fold objective was to stimulate investment in the priority sectors and to ensure fuller utilisation of the installed capacities Towards the end of 1975, the Government exempted from the normal industrial licensing proposals medium entrepreneurs to set up new capacities and utilise the existing capacities to a fuller extent in 21 industries. Another 29 medium sector industries were allowed similar facilities with the twin objective of controlling inflation and increasing production in key and important industries 15 selected engineering industries thereafter were allowed to grow automatically at the rate of 5 per cent per annum or upto a ceiling of 25 per cent in a plan period.

These steps have been in the right direction and their success is quite evident from the improved performance of the major industrial sectors in the last year. With industrial output growing by 10 per cent in the first quarter of the current year, the fiscal incentives announced by the Finance Ministry should be regarded an added stimulus for sustained growth. Some of the 43 industrial products which have become eligible for the 25 per cent relief in excise from July 1976 were already among the beneficiaries of the Budget concessions announced earlier Yet, the fiscal gesture could not have been better timed. The maximum marginal rate of direct taxation has been reduced from 77 per cent to 66 per cent. A system of investment rebate at the rate of 25 per cent of the cost of acquisition of new plants and machinery has been introduced. Exemption of tax on the interest received by banks on long term loans to the industry will enhance financing facilities Removal of restrictions on the payment of dividends is another major step to promote investment The substantial step-up in plan outlay in 1976-77 by 31 per cent will provide an additional boost to investment. With the Jha Committee currently reviewing the structure of indirect taxes, concessions such as these may be taken as short term steps because more is in the offing.

In the annual report on industrial growth rate, cautious optimism was expressed With the public sector having taken impressive strides, it was indicated that acceleration in growth would depend upon the private sector adjusting to the buyer's market that had set in through a flexible adjustment of its pricing and investment policies.

In their commanding heights, the public sector enterprises recorded a 17 per cent growth of output during April-January 1975-76 over the corresponding period of the previous year. In the heavy industry, production increased by 35 per cent, while the saleable steel recorded an increase of 18 per cent, coal and power 12 per cent each, respectively. The production trends were kept unabated and in

(*Contd. on Page* 14)

Ten years ago we could claim that the No.1 scourge of public health-MALARIA-had almost completely been eradicated. Between 1958 and 1965 the intensive measures to eradicate malaria with the help of pesticides like DDT and BHC had reduced the incidence of the disease from 75 million to barely a million. This resulted in higher agricultural production and improvement in the economic conditions of the people. This achievement, remarkable by any standard, made us all feel that we had won the age-old war on the mosquito. But we were soon shaken out of this complacency when the little insect started multiplying again with a new in-built resistance to the insecticides. In 1975, there were over 5 million malaria patients in Indi and there are more toda How do we propose to mee this new challenge? Th author of this article,

DR S. PATTANAYAK

The Director of the Nation Malaria Eradication Pro gramme, **discusses the ne strategy adopted by th Government to meet thi challenge.**

PRESENT STATUS OF NMEP IN INDIA

MALARIA WHICH has been number one health problem in India is a disease which is caused by the presence in the red blood corpuscles of human beings a unicellular parasite Plasmodium Two species of these parasites are responsible for more than 95 per cent cases of malaria Of these two species, one species *P falciparum* can be responsible for deaths due to malaria The life cycle of malaria parasite involves carrier human being with malaria parasites in blood, mosquitoes which get infected after biting the carriers and the host the human being who is bitten by the infected mosquito and suffers from bouts of malaria fever. It was estimated during 1935 that 100 million persons suffered from malaria every year and about 1 million deaths occurred due to this disease Before the National Malaria Control Programme was initiated in 1952, the incidence of the disease was estimated to be 75 million cases with about 0 75 million deaths directly due to malaria Large areas like Terai area of U P., Wynad in Kerala and Malnad in Karnataka could not be colonised due to the hyper-endemic conditions prevailing there The output of the coal-mines was poor and projects like building of dams, construction of rail tracts, etc could not be taken up due to the ravages of malaria in these areas

Before the Second World War malaria control was difficult, expensive and economically feasible only under particular circumstances The protection of individuals or groups could be obtained either by the Drug prophylaxis or by the use of mosquito nets or house screen ing. The advent of the residual in secticides in the post Second Worl War period changed the concept c mosquito control and it becam possible for the Malariologists t think in terms of control and late eradication of malaria Spectacula results were achieved in the pilo projects taken up by the State Go vernments for control of malari by spray of residual insecticides lik DDT and BHC The Governmen of India with the help of WHO USAID and the States embarke on National Malaria Control Prog ramme in 1952 World Healt Organisation had also taken cog nizance of the results achieved b use of residual insecticides in othe parts of the world also and durin 1955, Eighth World Health Assemb ly at Mexico, declared its objective from Malaria Control to Eradica tion In India, results of the Malari Control Programme had show spectacular success and in 1958 the programme of Malaria Contro was changed to that of Eradication Intensive measures carried out i the States reduced the incidence from 75 million cases to 0.1 millior cases during 1965. Deaths due tc malaria were completely eliminated Rich dividends worth several millions of rupees were reaped as a result of the eradication measures in terms of developments of agricultural land, irrigation and power

Anti-malaria squads go around village taking blood samples to test the existence of malarial parasites.

projects, industrialisation. etc.

From 1965 onwards the incidence of malaria started increasing The incidence, year-wise is given below at Table 1.

TABLE I

Year	Cases of Malaria
1961	49151
1962	59575
1963	87306
1964	112942
1965	100185
1966	148156
1967	278621
1968	274881
1969	348647
1970	694647
1971	1322398
1972	1428649
1973	1930273
1974	3167658
1975	5166142

The drastic reduction in the malaria cases with no deaths due to malaria brought about a sense of complacency amongst the public, the administrators and the malaria workers. Initially other household pests like, house-flies, bed-bugs and cockroaches were also killed when the spraying was carried out in the villages for control of mosquitoes. Rapidly these pests developed resistance to the insecticides and the collateral benefits which were so obvious, were lost. This resulted in disinterestedness of the people at large who during subsequent years many a time, would not cooperate in getting their houses sprayed So the totality of inssecticidal coverage, as envisaged in the programme, was not achieved

The main characteristic of the Eradication Programme was the total coverage of all malarious areas. It implied that all houses would be sprayed and the work would be carried out at the appropriate time with greatest efficiency, so that before the malaria carrying mosquitoes would become resistant the disease would be eradicated.

The setbacks in the incidence of malaria have been due to lack of achievement of the above requirement. The insecticidal sprays which had to be continued, resulted in the development of resistance and the tools which were once considered to be sharp enough became blunt in many areas.

The increased incidence of malaria has caused great concern to the Government of India and a Modified Plan of Operations has been evolved. This Plan is a three pronged attack on Malaria. The objectives under this Plan are; (1) deaths should not occur due to malaria (2) people may not suffer from malaria and (3) the gains achieved are maintained.

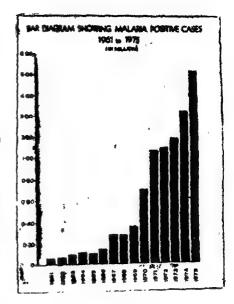
The three pronged attack is:

(a) All out efforts to be made by the Government by carrying out malaria control measures keeping into consideration the degree of the incidence of malaria in different areas.

(b) People's participation, particularly in source reduction and in the distribution of antimalaria drugs in the remote areas

(c) Research, which had remained neglected for such a long time because of the excellent results that were initially achieved under NMEP

(a) Government Efforts :

Adequate quantity of antimalaria drugs and insecticides are being procured These are to be supplied at the periphery at the appropriate time and space Malaria Control Units have been reorganised according to the geographical conformity of districts so as to involve the district authorities in the implementa-

The disease is on the increase but so also are the efforts to eradicate it. Blood samples being tested through a microscope.

tion of the programme. Wherever necessary the antimalaria drugs and insecticides are also being imported The entomological set up has been approved at the zonal levels and these are being established at the revenue divisional headquarters. The entomological component is to monitor, the susceptibility status of the malaria carrying mosquitoes to the insecticides in use and the information is to be fed to the States and to the National Directorate for formulating "Plans of Operations". It is expected that based on the above, under the Modified Plan of Operations right type of insecticides would be used at the correct time in order to achieve maximum and best possible results

(b) People's Participation :

Up till now people's participation was only sought for achieving insecticidal spray coverage Under the new plan of operations the programme is moving in a big way to have the active participation of Panchayats and School teachers in the distribution of antimalaria drugs in the remote areas The National Service Scheme is also taking keen interest and students are participating in carrying out insecticidal sprays and explaining to the villagers the importance of acceptance of spray and need for taking antimalarials in case of fevers

Under a separate scheme the Basic Health Services and the Malaria Surveillance Workers are to be utilised in 70 districts to work as Multipurpose Workers in order to know the feasibility of taking of such work in the other parts of the country.

When Malaria Control Programme was switched over to Malaria Eradication Programme and spray operations were extended to all the rural areas, it was thought, that in urban areas while the local bodies would carry out antilarval operations within the municipal limits, NMEP will take care of the peripheral areas by carrying out spray operations in the periphery to an extent of half mile. The local bodies, could not carry out the antilarval operations because of the paucity of funds. From 1971 onwards, the Government of India, took up 28 selected towns for central assistance for carrying out antilarval operations, under the ambit of NMEP. Under the Modified Plan of Operations during 1977-78, 44 additional towns are also being taken up in the scheme.

(c) Research on Malaria :

As already pointed out the reduction in the incidence of malaria and no deaths made the research worker feel that malaria disease was on the way out and no further research was required to be carried out The institutes which carried out primarily work on malaria were made multidisciplinary. Only the resurgence of the disease has brought to light the lapse of the workers in this field The Government, while approving the Modified Plan of Operations, has desired that intensive research both of fundamental nature as well as short term result oriented be taken up in order to find solutions to various problems which need immediate attention.

The disease is on the increase but so also are the efforts. It is expected that the scrupulous implementation of the Modified Plan of Operations by the States, the adequate supply of the insecticides and antimalarials and their utilisation in time and space in the periphery will bring about decrease in the incidence. It is felt that if the measures as laid down in the Modified Plan of Operations are implemented the disease would be contained and achievements attained would be maintained ☐

INDUSTRIAL GROWTH

Contd. from Page 11

the first quarter of the current year, an 8 per cent rate of industrial growth in such key industries as coal, electricity, steel, fertilisers, cement, nonferrous metals, Vanaspati and jute manufactures showed a remarkable increase There has been a 21 6 per cent increase in power generation during the period In industry, the prospects are for an 11 per cent increase in output in the mining sector and at least 7 per cent increase in manufacturing.

Apart from the performance of the public sector, the trend of production in the private sector, particularly in the critical areas, has been encouraging The total production of machine tools is likely to exceed Rs 100 crore during the current year as against Rs 91 crore in the previous year Production of machinery for manufacture of tyres and rubber goods, which stood at Rs 3 5 crore in 1974-75 is expected to be more than double during the current year Chemical machinery worth Rs 50 crore is expected to have been produced during the year registering almost 20 per cent increase over the last year's production Paper machinery and sugar machinery are expected to register an increase of 56 per cent and 18 per cent respectively, over the last year's performance. Cumulative production in undertakings under the department of industrial development was of the order of Rs. 77 crore which meant an increase of 51 per cent over the corresponding period of the previous year ☐

The investment outlook for 1976-77 has greatly improved. The fiscal incentives allowed to industry, the removal of operational constraints in production, a growth-oriented import policy and the significant breakthrough of the public sector have had their effective compulsions exercised such that the economy is now poised for a cumulative growth The Government has recognised the important role that the private sector will play in the economy and has accordingly clarified its policies in respect of industrial licensing, capital issues, management, foreign collaboration and other related areas The idea is to ensure a fair return on investment On its part, the response of the private sector seems adequate, and with the revitalisation of both the sectors, India's economy has now turned the corner and looks forward to a better future. ☐

A Note From Ronald Ross's Diary

When The Million Killer Was Identified

THE 20 AUGUST 1895--the anniversary of which I always call Mosquito Day—was, I think, a cloudy, dull, hot day. I went to hospital at 7 a.m., examined my patients, and attended to official correspondence; but was much annoyed because my men had failed to bring any more larvae of the dappled-winged mosquitoes, and still more because one of my three remaining Anopheles had died during the night and had swelled up with decay. After a hurried breakfast at the Mess, I returned to dissect the cadaver (Mosquito 36), but found nothing new in it. I then examined a small Stegomyia, which happened to have been fed on Husein Khan on the same day (the 16th)—Mosquito 37—which was also negative, of course. At about 1 p.m. I determined to sacrifice the seventh Anopheles (A. Stephensi) of the batch fed on the 16th, Mosquito 38, although my eyesight was already fatigued. Only one more of the batch remained.

The dissection was excellent, and I went carefully through the tissues, now so familiar to me, searching every micron with the same passion and care as one would search some vast ruined palace for a little hidden treasure. Nothing. No, these new mosquitoes also were going to be a failure: there was something wrong with the theory. But the stomach tissue, still remained to be examined—lying there, empty and flaccid, before me on the glass slide, a great white expanse of cells like a large courtyard of flagstones, each one of which must be scrutinised—half an hour's labour at least. I was tired, and what was the use? I must have examined the stomachs of a thousand mosquitoes by this time. But the Angel of Fate fortunately laid his hand on my head; and I had scarcely commenced the search again when I saw a clear and almost perfectly circular outline before me of about 12 microns in diameter. The outline was much too sharp, the cell too small to be an ordinary stomach-cell of a mosquito. I looked a little further Here was another, and another exactly similar cell.

The afternoon was very hot and overcast; and I remember opening the diaphragm of the sub-stage condenser of the microscope to admit more light and then changing the focus. In each of these cells there was a cluster of small granules, black as jet and exactly like the black pigment granules of the Plasmodium crescents. As with that pigment, the granules numbered about twelve to sixteen in each cell and became blacker and more visible when more light was admitted through the diaphragm. I laughed, and shouted for the Hospital Assistant—he was away having his siesta. "No, no," I said: "Dame Nature, you are a sorceress, but you don't trick me so easily. The malarial pigment cannot get into the walls of the mosquito's stomach, the flagella have no pigment; you are playing another trick upon me!" I counted twelve of the cells, all of the same size and appearance and all containing exactly the same granules. Then I made rough drawings of nine of the cells on page 107 of my notebook, scribbled my notes, sealed my specimen, went home to tea (about 3. p.m.), and slept solidly for an hour. . .

When I awoke with mind-refreshed my first thought was; Eureka! the problem is solved! I seemed to have found in my sleep an explanation of the pigment. The flagellated spores grow in the gastric cells of the Dapple-winged Mosquitoes just as the young plasmodia grow in the human blood-cells, and as they grow they absorb haemoglobin from the blood in the mosquito's stomach just as the Plasmodia absorb it from the bloom-cell (the "pigment" is of course nothing but altered haemoglobin). I was wrong: my cells were in fact the female crescents themselves which had been fertilised by the sperms of the male crescents (which we had called flagellated spores) and were now beginning to grow still containing other original pigment, in the gastric cells of the Anopheles. Scientifically they are called Zygotes. But any explanation was enough at the time, and I wrote that evening to my wife. "I have seen something very suspicious in my mosquitoes today and hope it may lead to something." Then I added: "Lately I have been putting together those rhymes I used to make on 'Exile'—you remember. I think I will write them out fair. . . . " But another consideration struck me. If these cells were the parasites they should grow in size in the last remaining mosquito during the night; and I spent that night in an agony lest my sole surviving friend should perish and go bad before morning.

Next day I went to hospital intensely excited. The last survivor of the batch fed on the 16th, Mosquito 39, was alive. After looking through yesterday's specimen I slew and dissected it with a shaking hand. There were the cells again, twenty-one of them, just as before, only now much larger! Mosquito 38, the seventh of the batch fed on the 16th, was killed on the fourth day afterwords, that is, on the 20th. This one was killed on the 21st, the fifth day after feeding, and the cells had grown during the extra day. The cells were therefore, parasites, and, as they contained the characteristic malarial pigment, were almost certainly the malaria parasites growing in the mosquito's tissues.

The thing was really done.

That evening I wrote to my wife: "I have seen something very promising indeed in my new mosquitoes and I scribbled the following unfinished verses in one of my In Exile notebooks in pencil:

This day designing God,
Hath put into my hand
A wondrous thing. And God
He praised. At His command.
I have found thy secret deeds
Oh million-murdering death.
I know that this little thing
A million men will save—
Oh death where is thy sting?
Thy victory oh grave? □

six killers

The huge discrepancy in the survival rates of infants in developed and in developing countries is a grim pointer to the Third World's need for immunization protection

by David C. Morley

FOUR OUT of five of all the children in the world live in the developing countries, and 97 per cent of all deaths in childhood occur in these countries. In many rural areas, a quarter of the children die before they are five years old, and in some areas this figure may be as high as a third, or at times even a half of all the children born. In the industrialized countries, 975 or even 985 out of every 1,000 children born alive will celebrate a fifth birthday. For this reason, improving nutrition and preventing such infections as measles are a high priority in every developing such infections as measles are a high priority in every developing country's programme while in the development world maintaining a reasonable level of immunity against these illnesses remains a priority for the health services. Six diseases in particular are susceptible to prevention by a simple inoculation procedure.

Measles

Rhazes was born in Persia in the year 860 and was one of the famous physicians of his time. He wrote: "Measles which are of a deep red and violet colour are a bad and fatal kind,". This type of measles was rediscovered less than 20 years ago, and is now considered in many countries to be the infection which causes most deaths. Measles among the malnourished children of developing countries carries a mortality 400 times greater than in industrialized countries.—

Measles is caused by minute particles or viruses which are only visible under the electron microscope. It is highly infectious and can be spread by droplets from the nose or throat of infected children. After 10 to 11 days the child develops a bad cold, may have vomiting and loose bowel motions, and after four days develops a rash overnight. This sudden appearance of the rash has led to many beliefs about the disease Usually the temperature comes down with the appearance of the rash, and for this reason in many countries people try to "bring the rash out" with strange customs such as wrapping the child in a red blanket or even beating him or her with nettles.

Even more misguided beliefs require the food and drink given to the patient to be restricted. The severity of measles in children in developing countries is now known to arise from their poorer state of nutrition. As a result, a much more severe rash develops, which turns the darker colour described by Rhazes; then follows a peeling of the skin as the superficial layers die. Unfortunately this rash is not just on the skin. It also affects the skin inside the mouth-in fact the "skin" that lines the windpipe and smaller tubes of the lung, as well as the lining of the gut—leading to pnueumonia and diarrhoea which are particularly common and severe following measles in developing countries

Not only is the disease more severe but instead of its occurring most commonly in the pre-school and early school years, most children in developing countries catch measles between the ages of five months and three years This early age of infection can be explained partly because the child has so much contact with other children in the joint family system, and is frequently carried about by them, but also because, in the more severe form of the disease found in malnourished children in developing countries the virus particles may be secreted from the nose and throat not just for one to three days but for perhaps as long as one to three weeks Most deaths from measles in developing countries are due to pneumonia or diarrhoea, although some result from the inflammation of the brain which is also still found in industrialized countries. The only answer is vaccination and prevention of the disease

The severe form of the disease occurs in all those countries where there is malnutrition due to a deficiency of protein and calories. It is made even worse where there is also a shortage of vitamin A (the vitamin found in such vegetables as carrots), an acute lack of which can lead to blindness. Both measles and a lack of vitamin A result in the disappearance of the tiny cells

that "oil" the surface of the eye with their mucus secretion. In an attempt to overcome this the production of tears is much increased More than half the blindness in childhood in some countries is due to an attack of measles in a child already deficient in vitamin A.

Diphtheria

It is now more than 50 years since the first vaccination procedures against this disease were started, and few doctors or lay people in the developed countries can remember the illness which has been so effectively eliminated. In the untreated, perhaps 30 to 50 per cent died. The disease first appears as a sore throat, and in the throat a white skin develops over the tonsils and may spread down to the voicebox; in a certain proportion of cases this requires an emergency opening into the windpipe to allow the child to breath

The bacteria which form this skin also produce a toxin which can affect the heart or the brain Unlike measles and whooping cough, diphtheria is not found all over the developing countries of the world, and is more serious in those countries in which small towns and urban life have developed Apparently young children who run about and acquire many cuts and sores on their legs develop an immunity from these sores through being infected with the diphtheria germs early in life. Fortunately the majority gain this immunity without suffering any of the complications seen when the bacteria multiply as a skin in the throat

Whooping Cough

Whooping cough comes second to measles as a cause of morbidity and mortality among infectous diseases in developing countries The duration of this illness is well exemplified by the name "the Hundred Day Cough", given to it by the Chinese. The cough may go on for at least three months, and may recur with any cold or bronchitis over the next year.

Perhaps it is not surprising that so many popular remedies have been suggested Fifty years ago the children were taken through railway tunnels in an open carriage, or more recently they were sent up in an aeroplane. in many countries the patient may be passed under the belly of a donkey The cough, once heard will always be recognized again. and the way the spasm of the cough takes the child by surprise, so that to restore air to his lungs—he sucks air through the windpipe, giving the characteristic whoop The mothers in West Africa had a good description of the cough They would say that the child "took a long time over coughing" They were also familiar with the sticky phlegm that is coughed up, and would pick this out of their small children's mouths It is particularly in these small children that the disease is so severe and more than a third of all deaths take place in children who develop it under the age of five months The child may die from penumonia, or from small or large bleeding in the brain

Unfortunately, in small children in whom the disease is so severe, there is no characteristic whoop, and very often the disease is not recognised for what it is So we use the whoop in the older child to lead us to those families in which there is a young baby who will urgently need treatment, since whooping cough can be cured if it is treated in the first week

Tuberculosis

The wasted adult with poor skin, fever and tiredness, frequently coughing up blood—this was the picture of consumption or adult tuberculosis known only too well 50 or more years ago in Europe. For most people the disease is now no more than a name, and when it is detected there is excellent treatment available Consumption in developing countries, particularly in the cities, is almost in an epidemic state. Nearly one per cent of all adults may be coughing up the germs of the disease. The cough and the sputum spread the disease to the family and others who come in contact, and particularly for children this may be very dangerous.

SAVING YOUNG LIVES

Malaria and viral infections are wholesale killers of children in the developing world. But six diseases preventable by vaccination are killers too - hence WHO's Expanded Programme on Immunization.

W. CHARLES COCKBURN

THANKS TO VACCINATION smallpox is about to disappear as a human disease. Poliomyelitis, diphtheria, tetanus and pertussis are under control in most of Europe, in North America and Oceania and in some individual countries in other parts of the world-BCG vaccine against tuberculosis is highly effective and more recently live measles vaccine has been brought into use on a large scale with outstanding success

Thus seven of the severe specific infections of childhood which have a world-wide distribution have succumbed to the vaccinator - but only in the developed world. In the other half of the world these diseases are as rife and as deadly now as they were earlier in the countries where they are now controlled.

The objective of WHO's Expanded Programme on Immunization (EPI) is to actively encourage and assist countries in the developing world to increase as rapidly as practicable the proportion of susceptible children who can obtain the benefits of immunization as a regular service of health care at the community and family level.

How A Vaccine Works

A person is said to be 'immune' to an infectious disease when the germ which causes it is prevented from multiplying in the person's body In nature, this immunity comes about as a result of an attack of the disease or a symptomless infection with the germ. The immunity so obtained is often life long—for example as in measles

The function of a vaccine is to

In childhood the disease may develop in many different forms The bones may be affected, and in the spine this leads to the characteristic hunchback, as parts of the bones are destroyed by the germs of tuberculosis Particularly frightening is the variety that develops round the brain causing meningitis This is commonly fatal, and even when successfully treated may leave the child with permanent damage to the brain Fortunately, in older children the experience of infection may leave them with a lifelong resistance to a further infection from someone coughing up the germs Whereas 50 years ago the majority of children could be shown by a skin test to have had an experience of the disease, in industrial countries now very few children have the mild infection or the more severe forms This is not true in developing countries, where both the children and the adults suffer a great deal of illness from this disease, which can be successfully treated, or even better prevented, by giving BCG (Bacille Calmette Guerin) immunization.

Poliomyelitis, or Infantile Paralysis

This ancient disease is depicted in sculptures on Egyptian tombs, and one can still find adults in developing countries using a stick in the same way as shown in this carving The small virus of poliomyelitis is spread through food and drink, and in 99 per cent of people it causes either no illness at all, or a nonspecific illness with fever for a few days and aches and pains particularly in the head and abdomen Only about one per cent of all those infected go on to develop pain in the legs and a varying degree of paralysis. But unfortunately, in many developing countries, these vague complaints by a child, and the fever, lead to the parents demanding treatment and perhaps an injection These injections very commonly lead to a paralysis in the leg or arm in which the injection was made

No treatment can stop this paralysis and to minimize its effects the child may have to have years of physiotheraphy and very probably wear metal calipers. Thanks to a very safe vaccine that can be taken by mouth, this disease has practically disappeared from industrial countries But so far very little has been done to tackle it outside the capital cities of developing countries, and beggars with thin useless legs are still comonly seen, as well as evidence of a large number of children suffering paralysis, the majority of whom are unlikely to survive to adult life

Tetanus, or Lockjaw

This is still a problem in developed countries, particularly following serious car accidents or any other injury that occurs out of doors. The germ responsible cannot grow in normal tissues, and grows best when it is in a stick or nail or some other small object that has been left in the flesh following an injury When the germ grows in this way, it produces a toxin which affects the brain and leads to painful spasms with the characteristic locking of the jaw.

A very special and particularly fatal variety is that which is found in small babies whose umbilical cord has not been cut under sterile conditions These babies develop a very severe form of the disease, from which usually at least three-quarters of them die. This disease is one of the most common causes of death in the first months of life Fortunately it can be prevented by careful cutting of the cord, and by ensuring that germs which are common in the soil do not get on to the cut umbilical cord Alternatively, the mother can receive immunization during pregnancy, which she passes through her blood to the unborn baby inside her and which protects it in the first days of life.☐

stimulate an immunity similar to the natural immunity but without the person concerned having to suffer the diseases or suffer more than a minimum of discomfort or reaction.

Vaccines are one of the safest "treatments" available in modern medicine, and though as with all medical procedures there is some risk, those associated with vaccination are extremely rare. The greater the care taken to control the quality of vaccines, the nearer the risk approaches insignificance.

How to deliver vaccination to the "client..

A most important feature of a vaccination is that once a country begins to develop a programme it must continue it beyond the foreseeable future. It is worse than useless to get enough vaccine for the susceptible children in one year and then find there is none for the upcoming age group the next year. Vaccination must be a regular feature of child care, and to have the most effective preventive action in the community a very high proportion (at least 75 per cent to 85 per cent) of the susceptible children must be vaccinated.

Thus a vaccination programme can only succeed in the long term when it forms an integral part of the health services of the country. It ought, in practice, to be a major element in primary health care.

The age of vaccination

For the diseases mentioned above, a child gives its best response to the respective vaccines when about a year of age. But there are variations. At birth a good response occurs to BCG and a reasonably satisfactory response is obtained with whooping cough vaccine and tetanus toxoids. With poliomyelitis vaccine there is a response though it is distinctly less than the best.

Diphtheria toxoid is best given after six months of age. A significant proportion of children below 7-8 months of age in the tropics and below 9-10 months of age in temperate climates do not respond to the measles vaccine. There are two main reasons for these variations. One is that the child has not yet developed its fullest capacity to respond to the stimulus of the vaccine, and the other is that babies are protected for varying periods after birth by antibodies transferred from the mother's blood-serum via the placenta. This "passive immunity" is least for tuberculosis and whooping cough and greatest – and longest lasting – for measles.

How many vaccines can be given at one visit?

From what is said above, it would seem at first sight that each vaccine should be given separately at a different age, and in the best of all possible worlds this might well be the case. But it would mean a minimum of 14 visits to the vaccination point. This is difficult enough in the countries with highly developed services of preventive medicine; in the rest of the world it is impossible

But satisfactory compromises are happily possible, and good if not always entirely optimal responses can be obtained by a judicious combination of vaccines and adjustment of the ages of vaccination; by so doing the number of visits can be reduced to two or at most three. Diphtheria, whooping cough (pertussis) and tetanus vaccines are mixed and given in the same syringe, and the others can be given at the same time as the DPT.

A basic schedule of the kind (which can be changed as local circumstances allow) is as follows:

Age	Vaccines
3 months	BCG (for tuberculosis) first DPT first Poliomyelitis
7 months	second DPT second poliomyelitis measles
9-12 months (if possible – but not mandatory)	third DPT third poliomyelitis measles (if not given earlier)

Using such a schedule a child can be protected for life from six diseases at a cost which will vary from US £ 1.5 to US £ 3.0.

Given then that vaccines are very efficacious and relatively easy to administer, why is it that not more than ten per cent of the children born annually in the developing world are vaccinated? There are three main reasons – the technical problems, the non-awareness of leaders and people, and the lack of effective organisation of resources

The technical problems

There are two main technical problems – the sensitivity of vaccines to heat, and, allied to this, the difficulty of providing cold cabinets running at suitably low temperatures to hold the vaccines from the central storage point to the furthest point at which they are to be administered

Diphtheria and tetanus vaccines are relatively insensitive to heat but the remainder are less stable. In order of sensitivity the succession is BCG and whooping cough vaccine poliomyelitis vaccine and finally measles, which is so sensitive that the very greatest care has to be taken to keep it frozen in the main stores and at 4°C elsewhere. Any departure from this requirement is very liable to result in an entirely useless injection.

Development of simple reliable "old boxes" is a major element of the WHO Programme and the approaches are both to develop short-term solutions and then to find more permanent systems.

At the same time the Programme is investigating methods of increasing heat stability in the vaccines themselves. It is good to be able to report that the approaches to improving both the cold chain and the stability of vaccines are already sufficiently encouraging to promise satisfactory results in a reasonably short period of years.

Non-awareness of the seriousness of the problems

The communicable diseases and mal-nutrition are by far the greatest public health problems in the developing world. Malaria alone kills two or three millions of children below 1-2 years of age. Diarrhoeal and acute respiratory virus diseases are among the prime causes of death in the young. In these circumstances it is not surprising that the diseases preventable by vaccination have been given their proper consideration in the past.

But they too are great killers – particularly tuberculosis, measles in some areas of the world (e.g. West Africa), and whooping cough. Though it does not often occur in large epidemics, poliomyelitis is as prevalent in Africa now as it was in the USA before immunization.

The important point to be noted is that vaccination gives much more rapid and much better return for money spent than any other preventive measures.

Everyone knows that there are insufficient health personnel in developing countries, and that the only means of ultimately assuring a regular programme covering a high

(Contd. on Page 31)

By the end of this year, India will have direct satellite links with 36 countries in the Indian ocean area, served by the Intelsat IV satellite, hovering above the Equator. Two earth stations, one in Arvi and the other in Dehra Dun will work with them for transmitting India's overseas telecommunication links.

The Growth Pattern of Intelsat

MOHAN SUNDARA RAJAN

THE space segment viz the satellite and its organisation have shot into prominence, as they play a crucial role in maintaining the links In this context, the growth of Intelsat (International Telecommunications Satellite Organisation) and its developmental trends and the new challenges facing it in the years ahead, acquire significance.

In 1964, in accordance with a UN resolution, governments and telecommunications entities, representing 85 per cent of the world's telecommunications traffic, met in Washington to participate in a conference It adopted an agreement to establish a global commercial satellite system Starting with eleven members in 1964, Intelsat today has 95 members, in all continents Ten other countries who are not members also use its systems. It may be pointed out that the Soviet Union and socialist countries are not members of Intelsat. Membership is, however, open to any State which is a member of the International Telecommunication Union (ITU).

The world's first commercial telecommunication satellite, 'Early Bird', was launched in 1965 It provided first permanent TV link between North America and Europe Starting with 150 telephone circuits in 1965, the capacity handled by a satellite (Intelsat IV) went up to 4,000 (or 12 TV circuits) by 1971 and today Intelsat IV A satellites can provide 6000 two-way telephone or 20 colour television circuits. Intelsat V, the next generation satellite, will have 12,000 two-way circuits, plus two colour TV circuits The first such satellite is expected in 1979

Obviously, the cost of the single telephone circuit has been plummetting downwards, yielding the economies of scale. To quote the Director-General of Intelsat, Mr.

Shri Rajan is a Science Writer

Mr Santiago Astrain, Director-General INTELSAT

Santiago Astrain, "in spite of inflation, charges by Intelsat for the use of the space segment for telephony have decreased to less than one-fourth of the initial charge set in 1965 and the system has achieved a reliability greater than 99.9 per cent

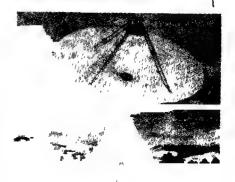
Television, says Dr. Astrain has added a new dimension to its services. The TV coverage through the satellite has jumped from 80 hours in the first year of operation to 13,000 hours last year, when the largest audience ever assembled in the world – some 1000 million people – was enabled to witness the Olympic games in Montreal. Indeed, TV transmission nets only three per cent of Intelsat's revenue. Yet its cultural impact is great. But of a revenue of £ 147 million expected this year, TV transmission will come up to just £ 5 million.

Once the satellite technology was ready to provide acess to more than one earth station at the same time, several earth stations came up in different countries. Starting with 5 stations in 1965, the number went up to 50 in 1971 and to 126 by the end of last year in more than 83 countries in the world. An interesting feature emerging now is that further additions to the earth stations have to come mostly from areas, where the volume of traffic has to be relatively small

In keeping with this new situation, Intelsat has evolved what is known as the second standard earth stations, which have a 11-metre antenna as against 29 metre antenna of the standard earth station, such as the one in Dehra Dun

A new trend which is welcome is the decision to lease its space segment for use for domestic communication links by countries. This has helped several developing countries Already, Algeria, Brazil, France Malaysia, Nigeria, Saudi Arabia, Norway and Spain make use of the facility India, Chile, Colombia and

The Antenna with the Control Room. The main dish is made of a number of panels, adjusted to get very high surface accuracy.

In the background is the microwave tower which sends the signals to Mussoorie for onward transmission to Delhi.

INTELSAT-IV A satellite, the latest in the series.

Philippines will soon have the facility Arrangements are in different stages for installing similar facilities in Australia, Libya, Oman Peru, Thailand and Zaire

India will use the Intelsat IV over the Indian ocean for linking remote areas like the Andamans and Lakshdweep with the main land by reliable telecommunications Seven earth stations will be set up for this purpose in different parts of the country. This will be the first time that the international satellite will be used for operating domestic links.

Intelsat's services have been utilised for providing modern communication facilities to remote areas. Norway, for example, is using the satellite to aid oil exploration in the North Sea. Algeria is using it to establish a direct link across the Sahara to reach its communities 'liv- 'living on the other side'. In fact, the services of Intelsat are being made available both for the international and domestic purposes, on a non-discriminatory basis Provision of domestic service should not, however, impair its prime objective viz. international public telecommunications services of high quality and reliability.

The structure of Intelsat consists of an Assembly of Parties, a meeting of Signatories, a Board of Governors and an Executive Organ responsible to the Board of Governors. The Assembly consists of parties to the Agreement and considers the resolutions and views addressed to it by the other two bodies. It is empowered to formulate policies and long-term objectives. Each party has only one vote. Decisions on substantive matters are taken by an affirmative vote cast by at least two-thirds of the parties, whose representatives are present and voting.

Its ownership, according to Mr. Astrain, belongs to those who use it. It is adjusted every year, so as to achieve a parallel between "what you own and what you use." The share of the USA has come down from 54 per cent to 24 per cent, not because USA's usage has gone down but because the usage by other countries has gone up. Mr. Astrain said the organisation is truly and fully international, what with representatives belonging to 28 nationalities, including India.

The New Challenges

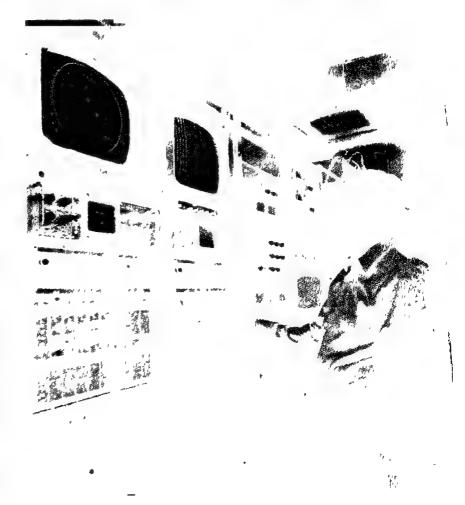
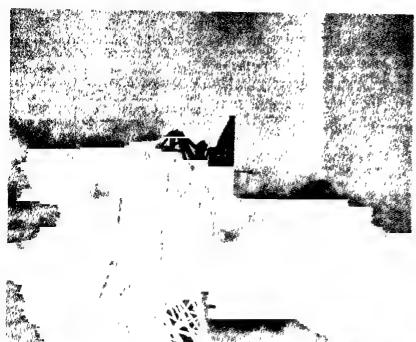
Intelsat, now in the early part of its second decade of service, is pois ed to face several new challenges.

The synchronous orbit, at abou 36,000 km from the Equator, is a limited natural resource. Over 3(satellites, excluding those not an nounced, are already in this orbit 45 more will join them by 1980 according to plans made know uptil now. Since the location of lan masses is not evenly distributed certain areas in the synchronou orbit are preferred. Over the India ocean, the portion between 60° an 100° east longitude and over th Atlantic between 230° and 270' east are preferred.

With the increase in the numbe of domestic satellites, the need ha arisen for coordination with th international satellites in the sam orbit. Interference of radio beam of different satellites has to be sorted out by mutual discussions. Recently, India and Intelsat arrived a a satisfactory agreement for locating India's domestic satellite in a area where Intelsat satellite is functioning. Similar accords would b necessary in the future for satelliti

Testing the reception of TV signals sent from other continents and relayed by the satellite.

A relay tower at a repeater station between New Delhi and Mussoorie. The 100 meter high tower has been made by Triveni Structurals. They have 3 meter antennas on the top.

Equipment made by the Indian Telephone Industries Ltd., Bangalore to process the signals. The is the first time that such a sophisticated equipment is made in India.

A view of the Control Panel

of other countries. Intelsat can give a lead in evolving a basis of coordination in a fair and equitable manner.

Intelsat is involved in exploiting the bandwidth, again a limited resource for telecommunication. The next generation of satellities, Intelsat V, will use higher frequencies viz. 14 and 11 Giga Hertz for the first time. Already, techniques called "spot beams", re-use the existing frequencies and augment the capacity.

New techniques like satellite to satellite direct communication will be explored so that better and more services can be provided on a cost-effective manner. Since it is a commercial venture, only proven technologies are used, like the batteries and solar cells, fuel for orbit corrections etc. There are trade-off points in exploiting these techniques. The present life-term is about seven years, based on the well-tested techniques But new techniques are on the anvil. In particular, the emergence of the re-usable shuttle may reduce launch costs and repair in orbit may become possible. Presently, it costs $ 40 million for a single launch. And the total cost of seven satellites (INTELSAT V) (the space segment alone) is about $ 238 million.

Intelsat has acted as a catalyst in triggering off an awareness of space communications for domestic and international needs. It has in a way contributed to the emergence of domestic and regional satellite systems. The lead given by it in coordination of its operations, while considering the needs of individual countries, is worthy of emulation, especially at a time when the orbit is occupied on a "first-come, first-served basis". □

DEHRA DUN EARTH STATION

AN EARTH STATION has a dish-like antenna and related equipment to process the signals to and fro a satellite. It can be used to relay the overseas communications of a country like telephone, telex, telegram and radio-photo.

The second earth station in India is situated near Dehra Dun. The first one is at Arvi near Pune Both the stations work with the Indian ocean satellite, INTELSAT-IV which is 36,000 km above the Equator. The stations are used for relaying overseas communications.

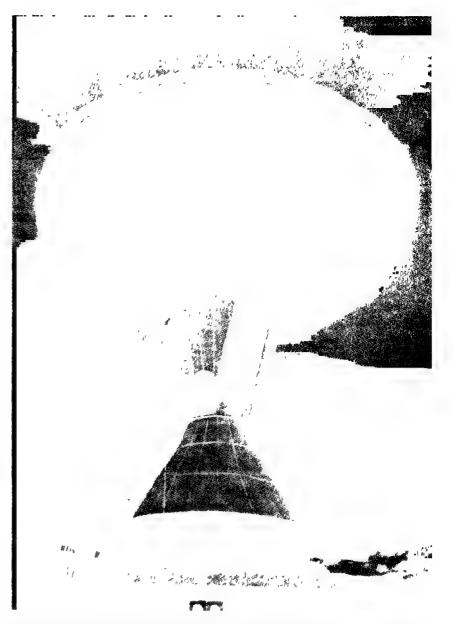
The second earth station has been built to provide a better grade of service to customers in different parts of the country, avoiding long internal haulage of international traffic.

The second earth station is situated in a 30-hectare plot in the Lachiwala forest, some 23 km from Dehra Dun on the main road to Rishikesh.

It is linked to New Delhi by a microwave system which has repeater stations at Mussoorie, Roorkee, Muzaffarnagar, Meerut and New Delhi Ridge. Except at Mussoorie, the height of the relay towers is 100 meters. The towers have been made by Triveni Structurals They have three meter antennae on the top, each facing its counter-part in the other station

The link provides two way circuits, each capable of carrying 960 telephone channels at the same time or colour TV programme. There is also a hot standby In addition, one way television channels have been provided for carrying TV programmes from Delhi to Mussoori

In Delhi, the newly completed Videsh Sanchar Bhavan is linked with Delhi Doordarshan by means of an underground video coaxial cable with provisions for handling international TV programmes The V.S.B. will house the International Telecommunications Centre, International Telephone and Telex Exchange, Programme Transmission Studios and a TV Centre. The total cost of the building is about Rs. 20 million.

In order to receive a signal from the satellite, the earth station

The Antenna, which has a diameter of 29 meters, at Dehra Dun Earth Station. Mad by Electronics Corporation of Indian Ltd., the 300- tonne antenna system ca accurately keep looking at the satellite in space

has a large parabolic antenna about 29 meters in diameter. Made by Electronics Corporation of India Ltd, the 300-tonne antenna system can accurately keep looking at the satellite in space, 36,000 km away

The antenna is fully steerable It can move plus or minus 270° in the horizontal mode and minus two to plus 90° in the vertical mode The antenna amplifies the signals by over a million times

The station has a sophisticated tracking system Its pointing accuracy is 100th of a degree. The antenna movement is controlled either by signals received from the satellite or by manual controls There is an arrangement to automatically correct the errors.

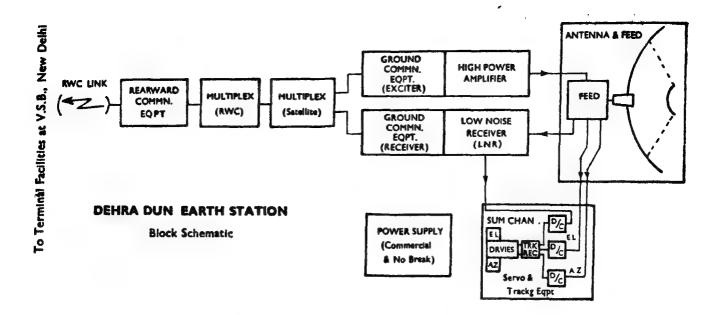
In order to separate the signal from the unwanted noise, the station has low noise receivin equipment which is kept in a tempe rature of minus 255° C.

For transmitting the signals the Indian Telephone Industrie has made multiplex equipmen which acts as the interface betwee the terminal and the satellite. Thi equipment processes the signal containing the information in bot sending and receiving directions.

The processed signals are reampli fied and transmitted to the satellit by 3 KW amplifiers.

To achieve very high reliabi lity of over 99.9 per cent, the sta tion has all the essential equipmen duplicated They include main powe supply In fact, the first station a Arvi has maintained over the las six years a reliability of 99 9 pe cent.

DEHRA DUN EARTH STATION

Block Schematic

The Dehra Dun Earth Station which compares favourably with the best stations in the world has been system engineered, fabricated, commissionned and run by Indian engineers.

It costs about Rs 100 million with a foreign exchange component of Rs.26 million. It has an indigenous content of more than 60 per cent as against 30 per cent in the Arvi project Only special items not locally available were imported

Canada has extended financial assistance to meet these imports by way of a loan and grant

The station meets the stringent technical requirements of the Intelsat system and provides direct satellite links with UK and France on the West and Japan on the East

Plans have been made for augmenting the station capacity to provide additional satellite links with more countries To begin with, Dehra Dun station will be linked to France, UK and Japan □

INDIA'S OVERSEAS COMMUNICATION SERVICE

ABOUT a century after the London-Bombay sub-marine telegraph service began, India's overseas communications were relayed through satellite. The first earth station of the OCS at Arvi near Pune went into commercial operation in February 1971.

OCS now operates 143 channels through the INTELSAT (International Telecommunications Satellite Organisation) system, with direct access to 23 destinations for international telephone, telex, telegraph, radio-photo and other services.

Initially, manual telex and telephone exchanges were installed in Bombay to handle the traffic. In 1972, the semi-automatic telex exchange began operation, providing on-demand telex service. By the end of 1973, semi-automatic telephone exchange was cut over to enable direct operator dialling service.

Though the original equipment was designed to handle traffic with the assistance of operators, the ingenuity of Indian engineers was instrumental in providing international direct dialling facilities from Bombay to London from October 10, 1976 and from New Delhi to London this year.

The capacity of the international telephone exchange is being augmented to 180 international circuits and the process is expected to be completed towards the end of this year. It would then be possible to extend the facility of direct dialling to more countries.

In order to handle the growing telex traffic, a Stored Programme Controlled Electronic Telex Exchange is being installed and will be ready this year. This exchange will have 450 national and as many international trunk lines initially. It will provide subscriber dialling telex facilities to most of the countries in the world.

The telephone and telex operation from New Delhi centre will initially be on a manual basis. A semi-automatic telephone exchange will be set up later.

Today, OCS, operates *telephone* services to 181 countries and 95 per cent of the total traffic are covered by satellite service.

	Destinations	Channels
Direct Telephone Services	33	130
Direct telephone via satellite	23	119

International Direct Dialling (IDD) is available between Bombay and London (bothways) and from New Delhi to London.

Direct Telex Services	22	191
Direct Telex via satellite	17	181

'On Demand' *Telex* service is available to U.K., Hong Kong, Germany and Japan and other countries served by these destinations. In all 173 countries are linked by telex.

Fully automatic dialling of telex calls would be available to most of the countries this year (1977).

Direct Telegraph Services	35	44
Direct Telegraph via satellite	14	19

Besides, there are leased channels for various press agencies, firms, weather services and provision for radio-photo transmission.

The traffic growth of OCS shows an upward trend after the satellite service was introduced.

(Paid minutes in millions)

	Telephone	Telex
1971	.5	1.5
1972	1.8	2.2
1973	2.8	2.8
1974	3.8	4.1
1975	4.7	4.7
1976	5.3	4.8

Radiophoto

High quality radiophoto service is available to practically all countries in the world which are equipped for the service.

Television

The global satellite communication system has made live relay o international T.V. broadcast prog rammes possible. While the facilit is presently available at Bombay the opening of the second satellit earth station at Dehra Dun wil bring this facility to TV viewers i the Northern region also. Th inaugural ceremony and our Prim Minister's address during the re cent non-aligned summit conference in Colombo, were relayed b satellite T.V. via O.C.S. and broadcast live to viewers in Bombay, by Doordarshan.

Data

OCS at present, provides poin to point highspeed (4,800 bits per second) data transmission from Bombay to Hong Kong after successful tests on 9600 bits per second signals. More such high speed data transmission circuits will be provided to airlines and other interested customers. OCS capability in this area was availed of during a recent demonstration of on-line RECON system (2400 bits per second) between Bombay and Rome, organised by the Department of Science and Technology.

Leased Services

Leased telegraph channel facility is very popular with bulk telecommunication users like Airlines, Banks, Embassies, Meteorological Department, Civil Aviation Department, International Trading Houses etc. for whom, round the clock reliable communications are essential. Considering the cost economics to bulk users and the facility of instant communication, more and more such customers are availing themselves of this unique facility.

Other Services

OCS also provides programme transmissions, popularly known as 'voice-cast' to Press correspondents, News Agencies and Broadcast Organisations, for on-the-spot coverage of events. International Press broadcast transmissions and reception on behalf of News Agencies provide another service provided by O.C.S. □

DEMOCRACY

DEMANDS

DISCIPLINE

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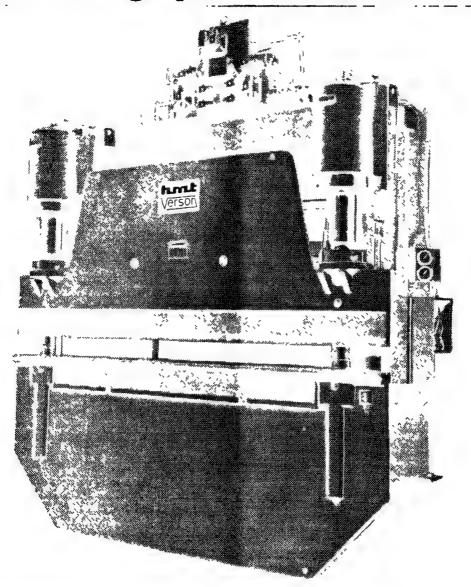
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Solar Energy

Prospects and Problems

A. R. PATEL

Prospects of a fresh hike in the OPEC price of crude this December has imparted a certain urgency to energy planning in India. Total crude availability is placed around 29 million tonnes in the terminal year of the Fifth Plan, thus leaving an estimated demand gap of 7 million tonnes. Oil was the primary fuel used and it generated the highest quantum of energy in India. In this article the author deals with harnessing of solar energy in the process of rural development in India.

IN THE MODERN world, energy is derived largely from fossil fuels—coal, oil and natural gas. Hydro-electric power is becoming relatively less important and nuclear power is becoming more significant. So far as our country is concerned, coal is the most important fuel. Proven reserves in India are approximately 83 billion tonnes. From a current annual production of 70 million tonnes, it is proposed to increase it to a level of 135 million tonnes by 1978-79. As our coal resources are most important, we have to generate energy in the near future to a very large extent from this resource. However, as most of our coal is of poor quality with high ash and sulphur content, the need to develop economic refinement methods is obvious and vital. As our oil supply is dwindling, coal liquefication and coal gasification will also be very much important. We have, it is estimated, total oil reserves amounting to about 130 million tonnes. The current annual consumption rate is around 23 million tonnes The current production is only 8 million tonnes and the gap in supply is bridged through imports We have natural gas resources of about 66 million cft. During the Fifth Plan no substantial increase in production of these resources is possible. Since this source of energy is very limited, there is a need to develop a substitute for oil as fuel. Substitution of oil as a raw material for fertilizer production would prove to be a more difficult task especially with some of the existing plants. Even more difficult would be the substitution of oil as a raw material for the plastics and chemical industry Substitution of oil as fuel for aviation and road transport would not be possible in the near-future.

The hydro-electric potential that can be economically exploited is about 41000 MW The current production is about 9000 MW and by 1978-79, it is proposed to increase it to the level of 16000 MW. Hydro-electric power can be used largely for seasonal requirements of irrigation etc

The current installed capacity of nuclear power is 600 MW During the Fifth Plan, this would be increased to about 1000 MW With the currently available uranium resources and reactor technology, the total potential for nuclear power is about 5000 MW. An active atomic mineral exploration programme is planned through which it is expected that more uranium resources would become commercially exploitable. Simultaneously, the development of breeder technology is being undertaken in an accelerated manner so that more power can be generated from the existing uranium and thorium resources, but this is a long term possibility.

In the areas of non-commercial fuels, cow-dung, firewood and vegetable wastes constitute the major categories. These are at present mainly consumed for domestic use in rural and semi-urban areas.

The current resources for energy from solar power, fuel cells, geothermal wind or tidal sources are very limited. The development of solar energy and fusion technology are very crucial and probably this will be the predominant form of energy in the next century Large scale generation of solar power presently requires large amount of land and new storage techniques, but it holds promise as a long-term solution to the energy crisis, and has a huge potential in rural areas in conversion of agricultural waste into fertilizer and fuel. It has also in urban areas great potential for domestic heating and lighting purposes and desalination. In the future, even the world will have to rely heavily on this inexhaustible source of energy. Although no scientific efforts have been made to fathom the estimated quantum of available solar energy, it is well-known that it is available in billions and trillions of thermal units.

Use of Solar Energy

Five thousand million years ago the Sun was born on the edge of a spiral arm of the great Milky Way. An immense cloud of primal hydrogen swirled into an eddy, and gravity took charge. As all the gas fell towards the centre of the cloud, tremendous pressures and temperatures were created, and the nuclear fire was lit. This nuclear cauldron has been on the boil ever since, transmuting about 600 million tonnes of hydrogen into helium *every second*. In the process five million tonnes of hydrogen completely self-destruct, to fire a flood of X-rays and gamma rays and other high energy shortwave radiations, and create immense fields of electromagnetic force. This matter becomes the energy, including sunlight, which flows into space. The sun is colossal; with a diameter of 1.3 million km, it fills a volume one million times as great as our planet.

However, no appreciable efforts have been made anywhere in the world in the direct use of solar energy

Shri Patel is a freelance writer.

in industries and agriculture. Until now the actual use of solar energy has been mainly as animatic energy, both muscular and biotic in the form of food and feed, useful animal and vegetable products. While the use of sun-heat dates back to the birth of mankind, the first specific reference relates to the use of solar distillation for obtaining fresh water from brine in 1742 in Italy. Though such methods were in vogue even earlier in countries like Chile, France, Algiers and the U.S.S.R., the research on solar distillation was stepped up by the U.S A , the U.S S.R and Germany after the Second World War. At present many universities and research institutions/national laboratories in the advanced countries of the world are engaged in developing new designs for solar distillation plants.

Both Florida (U.S A) and Israel have been using solar water heaters for households, hotels, hospitals and laundries for their needs of hot water for bathing and washing for the past several years Unfortunately no statistical data are available in our country for assessing the quantity of fuel and electricity consumed for heating water for bathing and washing purposes If these were available, estimates of savings that could be realised, would have been possible It is however of great significance to have some idea of the magnitude of this field from the studies made in other countries It is revealed that 25 per cent of the energy consumed in the U.S.A at an annual cost of $ 18 million is for heating and cooling of buildings which includes supply of hot water in the households, laundries, hospitals and hotels. It has also been estimated that the solar heaters operating in Israel save them 60,000 tonnes of liquid fuel annually Considering that the population of Israel is about 3.25 million whereas our population is over 600 million and the total energy consumed in our country is 500 billion KWH (1968-69).

There is no doubt that we are consuming very large quantities of fuel and electricity annually for supplying the hot water needs of households, hotels, hospitals and laundries. Experience in Israel for more than two decades has shown that a solar water heater effects a saving of 70 per cent on electricity consumption in the course of a year. The shortfall of 30 per cent is accounted for by the necessary provision that has to be made for heating water during periods when solar radiation is not available due to rains and heavy clouds. India is one of the most favourable zones which has been receiving radiation. Several other countries, less favourably situated than ours, have made wide use of solar water heaters during the last two decades and found them more economical than other appliances for heating water for household purposes. If solar water heaters are extensively used in our country, there would be considerable saving of electricity, kerosene, fuel-oil, charcoal etc. presently used for these purposes. Another advantage that would be had in this process is the reduction in atmospheric pollution.

The other areas where intensive application of solar energy could be made in our country is agriculture. Need for energy to be employed in our agriculture for various purposes has been ever increasing in the light of the fact that we have to double our food output to 230 million tonnes by 2000 A.D Crop growth and yield principally depend upon the most efficient use of soil, water, nutrients and sunshine. Of these, modifications in the first three factors would be made as they are within the easy reach of the farmers The crops, however, entirely depend upon nature for the sunshine Sunshine or light, as we call, it, is necessary for photosynthesis- -the process upon which virtually all life on earth has to depend It is estimated that the crop surface can receive 500 Cal/Cm^2 of radiation per day and with this, the potential productivity can work out to 770 kg/ha/day or 281 tonnes ha. of dry matter per annum Considering the grain to straw ratio as 0 6 , the grain yield could be estimated to be 168 tonnes per hectare It is this area which our agro-biologists/crop-physiologists can explore to bring radical and metamorphic change in the genetical make-up of the plants which may increase their leaf area index and ultimately result in substantial increase in yields For example the coconut is a crop which can harbour a number of shade tolerant crops in between them.

An additional advantage of the coconut tree is that it has got only one main stem and the canopy is away from the soil. The leaves are so arranged that a lot of sunlight passes through the leaves. Hence many plants can be grown under the coconut palms. This is one area where efforts could be made to harvest most efficiently and effectively. Perennial crops like nutmeg, cloves, cinnamon, cocoa etc. could be successfully grown in coconut gardens. Annual crops like banana and tapioca can also be cultivated successfully.

The timeliness in harvesting, threshing and drying of field crops is an important consideration for higher yields and quality of crops like paddy, maize, wheat, sorghum and millets. Harvesting, threshing and drying operations are done by employing manual labour. Many a time adverse climatic conditions unseasonal rains and cyclones affect not only the quality produce but also result in drastic reductions in yields. Drying operation is of greater significance since it is scientifically established that storage of farm produce especially like groundnut, wheat, maize etc has to be done after properly drying them at a particular temperature such that the moisture percentage is kept below the specified level. If this is not done, the produce is attacked by a host of disease-causing organism The traditional practice of drying the produce in the fields and courtyards by direct exposure to the sunshine involves the risk of damage due to weather as also losses due to rodents, birds etc. Moreover, sun-drying is not effective for kharif crops, particularly in areas of high rainfall This method is laborious and time consuming which also results in wastage of produce. Now mechanical driers are available in some parts of the country. However, the source of solar radiation needs to be exploited efficiently on a wider scale for drying field crops by evolving sun-driers It is interesting to note that the Indian Agricultural Research Institute has been conducting researches on designing solar energy collector-cum-dryer for drying harvested crops. It is demonstrated that the construction of a solar drier is fairly simple and can be fabricated by a village artisan.

The cost of a 3-tonne capacity solar drier is about Rs 1200 which can even be reduced by 30 per cent if the collectors are fabricated on the roofs of farm houses, storage godowns and livestock shelters. The additional advantage that can be secured is that such collectors would protect the inhabitants from the solar heat during the summer and also help in room-heating during winter-season.

The fruits and vegetable crops

which play a very vital role in providing much needed vitamins and minerals have to be properly canned/ stored in the season of plenty to make them available in the season of scarcity in any part of the world. Thus, now-a-days cold storage industries' growth has been gathering momentum. This industry offers potential scope for the employment of solar radiation which can be used in the interior villages that cannot be electrified. The Punjab Agricultural University has been experimenting on the commercial utilisation of solar energy for the purpose of running cold storage for vegetables and fruits.

The availability of solar radiation in Rajasthan with about 3200 hours of bright sunshine received in a year is the maximum when compared to other parts of the country According to a study, the solar energy impinging upon the earth and its atmosphere is about 32000 times greater than the total amount of energy being utilised from various sources. It is thus necessary to find a cheap method for collecting this energy and employing it fo ruseful purposes The solar distillation can be a useful and successful method for water supply in Rajasthan where instead of natural fresh water, saline water is available. Saline water together with high concentrations of fluorides, which is a distinct feature of the Rajasthan water table, has no better solution than solar distillation for making fresh water available to a large number of people in remote areas who for years have been facing this problem

Mahatma Gandhi correctly stated that the salvation of India lies in its villages. However, limitations in regard to extending electricity or making available fuel as a source of energy in the villages have posed many problems and challenges of rural development. The solar radiation which is universally available in all the villages for quite a good number of hours in a year need to be scientifically exploited as a natural and cheap source of energy for running pump-sets, gobar gas-plants, small scale units and conducting agricultural operations. It is gratifying to note that of late the Department of Science and Technology has been working on projects which involve the use of solar radiation for developing dry-milk powder units, space heating equipments etc. Recently under the Indo-German Co-operation agreement, pioneering experiments to develop the solar units has been signed. Under the agreement the West-German Government has earmarked a million DM (1 DM - Rs. 3.40) for the enterprise. Sunshine stations producing 10 to 100 KW of power have been proposed to be set up in villages where pumps can be energised for irrigation and cooling system for food preservation.

Some of the experiments conducted in tapping solar energy have yielded promising results and provided new directions in seeking solutions to various problems experienced in Indian villages. However, large scale experiments/ innovations on scientific lines need to be conducted to demonstrate the utility and efficiency of the units developed. In these endeavours national laboratories, regional research institutes and State experimental centres should concentrate on harnessing solar radiation. Detailed techno-economic studies of the solar water heaters, solar stills (desalinators), solar driers (air heaters), solar air-conditioners and power pumps need to be immediately undertaken since these and similar developments have a variety of domestic, agricultural and industrial application. A few of the pressing problems inhibiting the large scale use of solar radiation for various important uses where interruption of the availability of power is likely to cause substantial loss/damage as indicated below, should be tackled on priority basis

(1) Though the sun is the very source of life on earch, the rotation of the earth on its polar axis and its movement on the ecliptic orbit inclined 23.5° to the earth's equator, makes any recovery of the solar energy very complicated. (2) Rain and clouds make it unreliable to base any industry on solar energy. (3) Since the plants employing solar radiation are exposed to sun and rain, they have to be protected with anti-corrosive material. (4) Initial capital cost for developing various equipments is prohibitive. Efforts will have to be made to reduce the cost by employing the locally available materials in specific areas. (5) Meteorological Department of the Government has more than a 100 stations where the duration of sunshine is continuously recorded and of these 37 stations record the total radiation received at the place at the same time. However, a solar map of India is a first pre-requisite. (6) What sort of impact the different projects could make on the energy economy in India? (7) What percentage of energy substitution could one expect to make through solar power on long term basis?

It is gratifying to note that the IIT, Madras, the West German KFA and the Bharat Heavy Electricals have been working out a project which involves building of a 10-Kilowatt solar power house. The German expert has stated that solar energy could be a good source of power for India with its abundant sunshine. The successful completion of the proposed solar power house could one day result in solar power plants in many rural areas for energising irrigation pumps and providing cooling facilities for food preservation. It is estimated that even a 500 KW solar power generator if used in India on a mass scale would change the energy profile throughout rural areas as 80 per cent of it receives sufficient sunlight to run it for 7 to 8 months. About five lakh generators in India would generate 2.5 lakh KW of power which could be equivalent to 12 times the aggregate power generation capacity of India today. In 28 years, we have hardly been able to electrify 15 per cent of villages in India. If in the next ten years, we electrify 80 per cent of these through solar energy it would be our greatest achievement. A group of top Indian scientists appointed by the National Committee on Science and Technology (NCST) has suggested that the solar cell generation of electricity can be 'quite economical' in India and it can transform the rural scene completely. The group has aptly recommended the setting-up of a solar energy commission entrusted with the task of solar energy programme in the country for funding research and development programmes, for disseminating information in the field of solar energy and for popularising and promoting applications of solar energy. The need for setting up National level Solar Research Institute and drawing up an integrated programme is imperative.

The non-availability of cheap and adequate energy is the chief constraint in the process of rural reconstruction and re-order ing the rural economy. In the final analysis, therefore, the solution to this problem has to be sought in the commercial application of the greatest natural sources of energy—the solar energy.

□

Interdisciplinary Studies

Social Sciences in Professional Education : Agriculture, Engineering & Medical, *ICSSR, New Delhi,* **1976;** *Price Rs.* **60;** *Pages VII* **+ 493.**

THIS volume represents the edited proceedings of a Conference sponsored by the University Grants Commission in 1969 with the joint collaboration of the ICSSR, ICAR, and the All-India Council for Technical Education (AICTE). For the first time, a serious effort was made to identify and assign a precise if feasible role under prevailing conditions for the social sciences in three very important professional areas where the need for inter-disciplinary approaches has been insistently felt. While there has been a growing awareness about this need, concrete steps appear to have been taken only now.

There is no doubt that confusion of thought has all along persisted regarding the matching of disciplines and subdisciplines for research purposes in so far as most people who stoop to do researches lack the sure grasp of the proportion of the ingredients to the alchemy. Hence, more of unpalatable *pot-pourri* rather than thought provoking treatises have resulted in a large number of cases, in the form of doctoral or other academic efforts. The case for introducing inter-disciplinary studies has eventually not received its due share of attention on account of its unintended lapses, rather than due to the lack of grasp of its intrinsic logic at present.

In this volume Agriculture, Engineering and Medicine have received their due share of attention in their respective fields. Basically, the effort may be characterised as a major tentative to apprehend social reality i.e. the new and emerging facticity under dynamic political leadership. Evidently the assumption behind this effort has been that unless the disorienting and alienating trends implicit in the educational technology covering these disciplines are halted, the very purpose of higher education alongside professional practice and ipso facto the benefits thereof to the larger community in India would be vitiated. While the origins of concepts, principles and programmes underlying education in these disciplines have been the ineluctable resultants of distorted Western education, the various working papers of the discussion thereon have focussed on Indian conditions and our institutional goals. The policy maker's requirements have also been kept in view. Whether this will lead to a reorganisation of the pattern of services other than the endeavours to strengthen the doses of training given to the functionaries of technical de-

Books

partments is a larger issue on which the Conference could not have projected its deliberations. There is, however, unmistakable evidenc that an evaluation is overdue not merely in building a corpus of knowledge but in making them administratively oriented.

The reports of the Working Groups albeit reflecting a broad consensus on the role of social sciences in relation to the respective disciplines, are neither uniform in depth nor comprehensive in coverage. These are indicators of the extent to which a conference of this nature could mobilise scholars in the fields while facing the inexorable limitations imposed in their choice based on their inter-disciplinary popularity on the one hand and expertise, on the other. Viewed in this manner, the relative degree of attention received by the aspects of supplying a teaching focus to social sciences, its administrative organisation including discussion on core Faculty and *adjunct* Faculties, personnel policies and the preparation of syllabi, leaves much to be desired. The strategy of providing the social science inputs was the weakest in the discussions on agriculture, reasonably well-balanced and pragmatic in regard to engineering education and the strongest and well-conceived in medical education. This also shows to some extent the prominence of certain view-points held by leading members of academics and participants from other walks of life. The interplay of vested interests, the pranks of instant scholarships and hidden fears of blunting the edges of the careerist drives of a conglomeration of highly educated people capitalizing on their foreign degrees are the main parameters here.

Understanding the social phenomenon and explaining them in scientific terms have not posed problems to our Indian scholars hitherto in so far as they already happily combine a *penchant* for metaphysics and the pragmatics of science education. What proved itself to be the biggest road block, however, has been the problem of transposting these qualities into administrative policies governing socio-economic planning. There has been unmistakably improvements in perspectives in this direction and a multifaceted development in organizing and integrating thought in the country. By contrast, the impatient coteries of quantifications decry the efforts as they continue to move in the narrow disciplinary grooves and do not like to expose their bankruptcy in humanistic orientation. When the basic disciplinary spectrum that forms the requisities for competitive examinations undergo a change, the required emphasis in achieving motivations among the youth of the country is bound to be ushered in and herald change in community goals and social services. Fortunately, this is becoming a reality in contemporary India.

The ICSSR and the U.G.C. deserve high praise for this effort. However, circumstances appear to have conspired against the appearance of this volume intime. It is also desirable to bring out this type of publication in cheap paper backs and also in vernacular language for the benefit of the reading public. Overall, the volume under review represents the quintessence of the maturity and wisdom of the All India organisations that are unassailable by international standards.

—**B.N. Nair**

Mechanism of Labour Market

Wage Structure and Labour Mobility in a Local Labour Market. *by T.S. Papola and K.K. Subrahmanian; Sardar Patel Institute of Economic & Social Research, Ahmedabad,* 1975; *Pages* vi + 214; *Price Rs* 45.

ANALYSIS of labour market along the line of skill, occupational distribution, wage structure and the mobility of labour assumes significant importance in view of the persistent severity of unemployment Generally much irrational element prevails in the wage structure of the industrial economy. But for the rapid industrialisation of the economy, it is essential to standardise the wage structure. As labour perishes if not utilised, it becomes all the more imperative for the worker to accept whatever wage is available which introduces greater imperfection in the labour market Inspite of all the drawbacks, labour market behaviour is determined by certain economic considerations. But absence of information regarding the factors which influence the working of the labour market makes its working all the more arbitrary.

The present study fills this gap to a considerable extent. It studies the efficiency of the mechanism of the labour market. The reason for selecting the local labour market is obvious as the authors have rightly pointed out that due to various well-known socio-economic barriers to mobility and lack of information channels, a well integrated labour market has not taken shape on the Indian scene. Further the conditions prevailing in local labour market have not come under investigation, though such information can be a much better guide for laying down policies for the labour market.

The socio-economic surveys of different regions only portrays the requisite information without any analysis, while the present study tries to investigate into the rationality of worker's behaviour. For this analysis authors have taken considerable pains in processing ample amount of data which has helped considerably in pro-presenting a clear picture of Ahmedabad labour market.

The study is confined to Ahmedabad Municipal Corporation area and relates only to organised sector of manufacturing Industries It takes accounts of only employed factory workers.

The study relates to the year 1971-72 and its analysis is based on 0.7 per cent of the total factor employment in Ahmedabad (Page-16). With such a small sample, it is doubtful how far the conclusions arrived at can be justified.

Anyhow the authors should be given due credit to present a detailed analysis for various aspects of the labour market, wage differentials of different types, mobility of workers and different types of institutions in the labour market and have been able to arrive at uniform conclusions.

The study is well planned and systematic. The first chapter gives the objectives, scope and method of the study. The second one deals with the measurement and analysis of the various types of wage differentials. The third chapter presents the analysis of mobility among workers while chapter four deals with the process of relationship between wages and labour mobility as well as the information network and recruitment procedures in the labour market, and the final chapter summaries the findings, evaluates the performance of the Ahmedabad labour market and points out certain implications for labour market analysis and policy.

The conclusion that a local labour market is not an integrated competitive unit brings out conclusively the need for the standardisation of wage structure through the joint action of the Government, industry and trade unions.

It is not easy to digest the conclusion that the factor of mobility does not always bring gain to the worker and it is because of its rational behaviours that the Indian worker lacks mobility It is argued that a worker has a price and mobility cannot change it The question arises whether geographical, social and the capacity to pay of a particular unit has some effect on the wages or not It is rightly ascertained that the official industrial training programme is of no avail if the capacity and occupational allocations in the training institutes are not based on and frequently revised in accordance with the labour market situation

— **Rabindra Nath**

Saving Young Lives

(*Contd. from page* 19)

percentage of susceptible children in a country is to provide adequate staff to deliver medical care at the family level. This cannot be achieved overnight but a great deal can be done – first by training primary health care workers to include vaccination as one of their important duties, by improving logistics and cold chains by the simplest possible methods so that vaccines can be supplied in good condition; by arousing the interest of communities and decision-makers in the great benefits which are obtained at relatively small cost; and by enlisting outside agencies to assist the national authorities, so as to accelerate the development of their programmes by providing expert advice and essential supplies in the early years

Countries are finding that by good organisation and good management they can alredy substantially increase the coverage of the susceptible age groups with minimal additional inputs

Given concentrated effort on practicable methods for delivering vaccinaiton to those who need it, we can look forward to a rapid reduction of these six diseases □

India has an excellent record of fight against inflation and the determined measures taken have resulted in immense benefits to the nation's economy. But we are seeing again the ugly face of inflation and if the trend is allowed to gain strength, the economy will be in the doldrums. What we need is a new

Strategy to Arrest Re-emergence of Inflation

V.K.R.V. RAO

INFLATION IS AN UGLY economic phenomenon that hides its ugliness behind a cloak of high money incomes that create an illusion of prosperity. In fact, the reality behind the phenomenon is high prices that brings about a sharp reduction in the purchasing power of the currency unit, with not only an erosion in living standards of consumption goods and services, but also in savings which forms the key to a growth in living standards in the future. The rise in money incomes is also most uneven and results in a transfer of real income from workers, salary and wage earners to traders and producers who have surpluses to sell. Subsistence farmers and low income producers also suffer because they have to pay more for what they buy, while they do not have much to sell. In fact, inflation functions as a most inequitable and regressive form of taxation without in any way promoting development. Inflation, when it gets going, has an awful tendency to accelerate by feeding itself and when it becomes hyper-inflation or gallopping inflation, it means death of the economy. That is why heroic measures have to be taken to counter inflation as soon as the rise in prices takes on the character of an inflation.

We in India were facing exactly such a threat, when the gradual rise in prices for a number of years turned into an inflationary rise in 1973 and then threatened to develop into a hyper-inflation in 1974. Strong political will, an integrated fiscal and monetary policy aimed at demand management, positive action for increasing output, a judicious import policy, public distribution of essential goods, and specific measures aimed at controlling individual prices – all are required if inflation is to be met and price rise arrested if not actually reversed.

It is to the credit of the Indian Government that the inflationary threat which dominated the Indian scene during 1973 and 1974 was countered even before the declaration of Emergency in June 1975 and this continued with success during the next 12 months when we were living under the Emergency.

Even before the Emergency was announced, strong action had been taken in the field of demand management and the index number of wholesale prices, which had reached a peak of 328.0 in September (with 1961-62 as 100) fell to 312.3 in June 1975 or by nearly 5 per cent. The first 12 months of emergency saw a further strengthening of anti-inflationary measures, with not only more vigour and political strength behind its enforcement, but also broadening out into the field of supply increase and supply management and bringing about a further fall in the wholesale index, the figure for the week ending June 12,1976 being 294.4 as compared to 312.3 in June 1975 or a fall of 5.8 per cent.

In this task of countering inflation, monetary policy aimed at reduction in the growth of money supply both currency and bank advances, and fiscal policy aimed at reducing the growth of monetary purchasing power, played a major role during the earlier stages of the programme. Mobilisation of additional resources by the public exchequer and restraint in government spending also helped. Anoth[illegible] factor that played a crucial role i[illegible] curbing inflation was the driv[illegible] launched against smugglers, ta[illegible] evaders, violators of exchange re[illegible]gulations, and hoarders of commo[illegible]dities. This resulted not only in a[illegible] augmentation of both domestic an[illegible] foreign exchange resources of go[illegible]vernment, but also struck a morta[illegible] blow at the phenomenon of black money which had served as a criti[illegible]cal fuel to stoke the fires of infla[illegible]tion.

Nature also sent a helping han[illegible] in our attempt to counter inflation. The monsoons were on their bes[illegible] behaviour and were reinforced b[illegible] a larger supply of inputs of credi[illegible] and fertilisers and an improve[illegible] agricultural management. The re[illegible]sult was that 1975-76 saw a pheno[illegible]menal increase in the productio[illegible] of foodgrains and of industrial ra[illegible] materials and a sharp fall in th[illegible] prices of primary commodities. This increased production of food grains was followed by an all tim[illegible] record of increased domestic procure[illegible]ment. And, together with addi[illegible]tional imports, we have now bee[illegible] able to build up a buffer stock o[illegible] more than 17 million tons, which is more than a year's supply fo[illegible] servicing the public distributio[illegible] system. The latest estimate for th[illegible] holding of foodgrains in government hands is 22 million tons. This big buffer stock together with th[illegible] sharp reduction in black mone[illegible] are the most effective instru[illegible]ments we have for countering re-emergence of an inflationary rise in price levels.

Countering inflation, however, is only a negative aspect of economic

Policy. On the industrial side, measures have been taken for improving the utilisation of capacity, modernisation of equipment, and expansion of capacity by the relaxation of licensing rules and regulations governing both the use and expansion of capacity and by the broad range of fiscal incentives given in the pragmatic budget of 1976-77 for the benefit of the private sector in industry. The climate and capacity of the industrial sector for increased production have also been substantially improved during the period of emergency by the new discipline and attitude to work it has created, the absence of industrial disputes and of stoppages it has promoted and by the increased availability of power, transport, and import facilities during the period.

While all this has been helpful in curbing inflation and stimulating the climate for increased production and investment, recent trends have shown that the economy is not yet out of the woods. In fact, after one year of emergency, we are facing some of the contradictions and paradoxes in the Indian economy for which a solution has to be found. Thus, for example, one of the aftermath of the anti-inflation programme has been a decline in demand for a large number of industrial products catering to both consumption and investment requirements and the continuing cry of recession that is being raised by the private sector and the demand it is making for reflation and even for a mild dose of inflation. Government have responded to some extent by making liberal concessions in excise duties, reducing direct taxes on income and wealth, introducing an investment allowance, raising the plan outlay, and permitting repayment of the additional wages and half of D.A impounded in 1974. They have also increased the availability of funds for the private sector by the Voluntary Disclosure Scheme that has legitimised more than Rs. 400 crores of income and about Rs. 600 crores of wealth by payment of taxes on the disclosed amounts. They had however been firm in refusing to relax credit controls on the lines desired by the private sector nor have they succumbed to the pressures exercised by the farmers' lobby for an increase in procurement prices. The increase in purchasing power resulting from government policies is expected to raise demand and presumably, may lead to a rise in prices unless the increase in output which is expected actually takes place and has the effect of countering such a price rise.

Another paradox in the Indian economy in the context of counter-inflation is a result of the very success we have attained in our economic policy, namely, an increase in exports and an increase in our foreign exchange earnings and our foreign exchange balances. Our export promotion policy has achieved signal success; exports rising by 18 per cent during the emergency year as compared with less than 8 per cent in the world exports. Our foreign exchange balances have also swelled to a phenomenal figure of nearly 3 billion dollars partly because of increased export earnings, but largely because of vastly increased remittances from abroad and increased foreign aid. And this is in spite of the fact that our commodity exports are still far short of our commodity imports. The increase in exports has affected domestic supplies and also led to speculation with inflationary consequences. It is also well known that a large foreign exchange balance, while lending strength to the currency and thus permitting a measure of cheapening of imports, also has an inflationary bias by the domestic incomes that are created as a result of the purchase of foreign exchange by the Central Bank from domestic sellers.

Recent Disquieting Trends

In the context of the success we had achieved in arresting inflation and then reversing it, recent price trends are showing a disquieting tendency. And in fact, danger signals are again in evidence on the price front. From the trough of 282.9 which had been reached in March 1976, the wholesale index had risen to 294.4 by the second week of June 1976. In terms of the revised index number with its new base as 1970-71, the rise was 8.9 points from 162.6 in March 1976 to 171.5 in June 1976 since then prices have risen further, reaching 179.8 in February 1977 or by 8.3 points. If we take the period from February 1976 to February 1977 or look at the price rise from point to point over a period of one year, the rise has been from 164.8 to 179.8 or by about 9 per cent. There is no doubt that this is a disquieting phenomenon, a rise of nearly 9 per cent during the current year as compared to fall of 6.4 per cent in the corresponding previous year. The rise cannot be dismissed as a seasonal phenomenon, as the period covered is a whole year and from point to point.

I find it difficult to explain this phenomenon in the light of the unprecedented increase we have had in foodgrain production during 1975-76 (the latest estimate of output is 120.8 million tons), the large buffer stocks we have built up amounting to nearly 18 million tons, the increase of about 10 per cent in the index of industrial output, and the large capacity we now have for financing imports because of the massive build up of foreign exchange balances. It is true oil seeds and fibres account for a large part of the rise, but food articles in the primary list of the index also show a rise of 3.7 per cent, while manufactured products as a whole show a rise of about 8 per cent, mainly in consumer goods like edible oils, textiles and leather manufactures. Prices of manufactures have thus continued their behaviour of a rising trend seen during the emergency, while those of industrial raw materials have sharply reversed their falling trend during the earlier period of the emergency, and of foodgrains also, though not as sharply as industrial raw materials. There has been substantial increase in agricultural output and in industrial output, but this does not seem to have reacted on their price behaviour.

In short, while inflation has been countered, and in fact reversed during the year 1975-76, the last three months show that the process of countering inflation has not been completed. In fact, the old and presumably vanquished demon is showing signs of renewed life, gaining encouragement partly from the contradictions and paradoxes in the Indian economy and partly from the somewhat unfavourable behaviour of the Kharif monsoon this year. To prevent the demon of inflation from rising again and to complete the work of countering inflation and at the same time promoting growth and investment, I suggested in July 1976 the following policy measures for consideration:

1. A more selective policy regarding exports in the context of the domestic supply situation.
2. More recognition from the private sector in industry that it is no longer functioning in a sellers' market and therefore the need for greater readiness on its part to increase output, lower prices and go in for a

Yojana Quiz

1. The highest airfield in India is:
   (a) Gauhati
   (b) Imphal
   (c) Ladakh
2. The biggest library in the world is:
   (a) National Library, Calcutta
   (b) United States Library of Congress
   (c) Oxford University Library, U.K
3. The highest rainfall in the world is at
   (a) Mt. Waialeale, Hawaiian Islands.
   (b) Cherapunji, India
   (c) Zomba, Malawi
4. Why does a horse need shoes?
5. What is the length of a year of Pluto and Mars?
6. Which planet is having the largest number of moons?
7. When did India win the football event in the Asian Games?
8. Who scored the first century in Test cricket?
9. In which year Mughal Emperor Shah Alam granted Dewani of Bengal, Bihar and Orissa to East India Company?
10. India was admitted in U N. as a member on the 30 October, 1945. In which year Pakistan was admitted as a member?

ANSWERS

1. (c) Ladakh airfield, Kashmir 14,230 ft above sea level
2. (b) United States Library of Congress, Washington D.C It contains over 41,874,900 titles.
3. (a) Mt. Waialeale, Hawaiian Islands 450 inches, 1912–58
4. The loops of iron nailed to horse's hoofs are necessary because th hard roads along which they are driven would otherwise wear aw the horn of the hoof. Also, the hoofs of horses driven along dr roads become dry and unhealthy through lack of moisture – th wild horses bathe the ir feet every morning in the dew of the gras which keep the hoofs healthy and tough
5. 248 years and 88 days
6. Jupiter : 12 moons.
7. In 1951 and 1962
8. C. Bannerman of Australia
9. 1765
10. 30 September, 1947

policy of aggressive salesmanship, instead of expecting government to bail them out with larger markets at higher prices.

3. Greater recognition by all concerned that the Indian economy is moving from a class market to a mass market ond acceptance of the action requirements arising from such a recognition.
4. A more liberal use of our foreign exchange balances and a more flexible import policy designed to curb emerging inflationary pressures in the economy and promote modernisation of equipment and expansion of capacity
5. More vigorous action by government for curbing speculation, especially in industrial raw materials.
6. Firm and continued adherence to a policy of selective credit control and restricted deficit financing

I am glad that government have taken action on the lines contained in points 1 and 4 of my six point programme for countering the re-emergence of inflation (I do not claim the credit for this action) by restricting exports of goods in short supply and liberalising imports for increasing the domestic supply of goods in short supply and increasing the capacity to produce goods in domestic short supply But action on point 5, namely, curbing speculative activities, has been tardy and ineffective, while on point 6, government is succumbing to the pressure of the business community for liberalising credit and of plitical pressure for reducing the burden of taxation, and increasing public expenditure, thereby increasing the risk of adding to deficit financing. Points 2 and 3 relate to the private sector, and the private sector has not behaved in showing willingness either to reduce prices or change its orientation from the class goods market to the mass goods market. The private sector seems to see the remedy for inflation in more additions to purchasing power by credit and fiscal liberalisation on the plea of demand recession, and appears oblivious of the fact that demand is linked to price and that reduction in price is one way of increasing demand. Government is setting stoie on the rise in the industrial index and its massive buffer stock of foo d grains and its vast exchange resources but has not so far been able to make

The importance of sea weeds as a nutritious human-food is realised all over the world and research is now in progress to find out their possible utilisation for consumption by human beings During the years of food-crisis, the seaweeds will surely able to occupy a position of importance and serve mankind. The present article deals with the algae which occur in sea-water and how it can be utilized as food, fodder, medicines and fertilizer.

Industrialisation of Sea Weeds

U. C. PANDEY

SEA WEEDS are the algal flora inhabiting the seas. Algae are the most lowly of the green plants. It is a group of heterogenous plants which can grow in fresh water or saline sea water. Microscopic marine algae (*Diatoms* and *Dinoflagellates*) are unicellular, free-floating organisms, which are incapable of moving against the current in which they live Microscopic algae referred to as "Sea Weeds" belong to Phaeophyceae, Rhodophyceae, Chlorophyceae and Cyanophyceae, are large and multicellular structures

Sea weeds may vary from a few inches to hundred feet or even more in height as giant kelps (Macrocystis, Nereocystis) They generally occur along the rocky coasts of the temperate regions in both eastern and western hemispheres Industrial utilisation of sea weeds started principally from Europe in the production of kelp. "Kelp" is the name that originally referred to the ash, rich in soda and potash, derived from burning of sea weeds Kelp production was started by French peasants in 17th century. Drift weeds (*Laminaria, Saccorhiza, Fucus, Ascophyllum, Himanthalia* and *Chorda*) were first used.

In Japan Iodine is produced in commercial quantities from sea weeds. In U S A wartime demands for potash and acetone during 1917-18 brought about rapid industrialisation of Pacific coast Macrocystics beds

Algin is the general term designating the hydrophilic derivatives of alginic acid Algin is commonly used in the form of its salts namely Na-alginate, K-alginate, NH-alginate and propylene-glycolalginate Algin occurs in brown algae as cell wall constituent is especially prominent in Laminariales (*Laminaria*) Algin has remarkable water-absorbing quality that make it useful in numerous industries where a thickening, suspending, stabilizing, emulsifying, gel-forming or film forming colloid is required.

Sea weed extracts are mainly the constitutents of the cell wall of red or brown algae, however, *mannitol* and laminarin are believed to be photosynthetic products. Mannitol is used commercially in the manufacture of resins, paper, paints, varnishes and Match trades Laminarian is used in pharmacy

Since 1882 the agarophytes have become increasingly industrialised and the technical uses of agar-agar enormously expanded. Agar is a colloidal water-soluble gel extract from *Gelidium, Gracilaria, Pterocladia Ahfeldtia, Gigartina* and *Eucheuma* etc The extract has a peculiar property that makes it an ideal medium for culture of micro organisms. Agar is used as stabilizer and gel forming substance for jellies, ice-cream, chocolate in bakery and textiles Earlier industrial uses of agar in the orient included sizing paper fabrics, water-proofing paper and cloth and making rice paper durable.

Carrageenin, a phyco-colloid o rapidly increasing industrial utility is mainly obtained from *Chondrus crispes* and Gigartina stellata In agriculture, sea weeds are used as manure and fertilisers. Burning the weed and using the ash is an al ternative practice in China, wher the ash is used as fertilizer. Sea weec ash is found to be nearly as rich ir N and organic matter as farm yarc manure, twice as rich in potash poorer in phosphate and richer ir common salt, (NaCl). Sea weed are used as fodder in coastal areas The important species used fo this purpose include *Rhodymenia Palmata, Fucus, Ascophyllum, Lam inaria* and *Alaria* etc Sea weec meals are considered to be valuabl for domesticated animals. Fo poultry, sea weed meal can be sup plemented in the diet of egg-laying hens. It is valuable as a universa supplement against Iodine, Liqui extracts are used as fertilizers Ir some Coastal areas (Europe) coralline algae such as *Lithothamnio Lithophyllum* are used

Sea weeds have been described in the Chinese literature as a "Delicacy fit for the most honourable gues even for the king himself" *Porphyt* is used by Europeans in making soups In Japan sea weeds are taker as main meal "Kombu" obtained from Laminariales is a standard food item there "Amanori" is another preparation from sps of a *Porphyra.* Marine algae are used as food since they contain grea amount of minerals and vitamins The diatom *Nitzschia* very rich in vitamin A is possibly the main

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their impact felt on price behaviour Meanwhile, the danger of an inflationary rise in prices re-emerging in the Indian economy is becoming a matter of real concern, especially in the context of the additions we are proposing in the plan outlay, which of course has its own justification in the need for sustaining economic growth

I would therefore reiterate the need for implementing the six point programme I outlined in July 1976 and add to it two additional but major items, namely, the setting up of an effective system of public distribution of essential wage goods and the avoidance of populist measures that would add to purchasing power while making no offsetting additions by way of increase in mass wage goods output. Prices should be used either for increasing the desired output or for curbing increases in demand for socially non-essential output, while simultaneously action is taken on other fronts to increase the output of mass consumption goods and curb the output of luxury and class consumption goods In any case, prices should not be used in the mistaken and psuedo- Keynesian belief that increase in general purchasing power and rise in general prices will lead to increase in demand and increase in output. ☐

FOOD VALUE

A preliminary study of the nutritional aspects of some Indian sea weeds (Neela, 1956).

Species	Dry Sea Weed								Fresh Sea weed
	Moisture g/100g	Protein g/100g	Fat Mg/100g	Ca g/100g	P. mg/100g	Iron mg/100g	Iodine mg/100g	Calories	Vit. C/ 100g mg.
Gracilaria	14 8	7 6	170 4	0 7	50 0	30 02	29 2	330	7.3
Gracilari a Lichenoides	14.9	7 67	365.0	0 83	53 3	292.5	56.2	300	—
Hypnea sp.	18 7	7 5	70 0	1 3	101 7	112 1	44 2	270	8 6
Ulvalactuca	21 0	5 6	430 0	1 6	56 3	114.1	43 2	250	6.1

source of vitamin found in fishes, Vit. B is found in *Ulva Porphyra* etc. and *Alaria* is rich in Vit. C.

The high food value of various brown algae is perhaps due to the fact that they contain 6.15 per cent protein, 1.56 per cent fat and 57.04 per cent carbohydrates in various forms like Mannitol (5 37 per cent) Laminaria (36 per cent), Cellulose 1-9 per cent) and Algin (50 per cent are all digestible

For medicinal purposes sea weeds have been used since very early times in China, Japan and other Asian countries *Digenia simplex* (a red algau) is used as an antihelmitic. Sodium Laminarin sulphate is used as blood anti-coagulant. Agar is used in treating prolapsed stomach. In China and Japan, sea weeds were used in treating goitre Extracts of *Alsidium, Corallina, Codium,* and *Digenia* are used as effective vermifuge. Extracts of several marine algae (*Rhodomela Halidrys, Pelvetia Polysiphonai* and *Laminaria Digtata*) have also yielded antibacterial substances *Chondrus crispes* and *Gigania stellata* have long been used in Britain, as remedy for chest and stomach ailments.

Though Indian resources in sea weeds are limited and very small, their utilisation would be worthwhile as they contain minerals, trace elements and vitamins in a considerable quantity. Indian sea weeds can supplement the human food and stock food

A SOCIO-ECONOMIC SURVEY

Sikarpur Needs Government Help

Rural upliftment is still a far cry in this village which lacks basic amenities like a school, a dispensary and modern methods of cultivation.

INDRANI BASU

A socio-economic survey of the village Sikarpur sub-division Tufanganj, district of Cooch Behar in West Bengal, has brought to light a number of problems faced by the people in this village The total area of this village is roughly three-quarter sq. mile and the total population is 1,215. Of these 409 are male (33 72%) and 402 (33.08%) are female. Children constitute 33.25% of the total population Majority of the people are self-employed in skilled trades The village has only one kachcha P W D road, which becomes dusty in summer and muddy and slippery in rainy season

It is rather surprising that only a small number of people of this village are farmers By farmer is meant the person who cultivates his own land or the land of others and depends on agricultural income for his livelihood The people who farm here are illiterate and follow traditional system of agriculture which does not bring good harvests Hence the pecuniary condition of these farmers is not good and some are even unable to get a single square meal a day at times Our Government has done much for the improvement of agriculture of our country But somehow the farmers of this village have been deprived of the benefits given by the Government The reasons are mainly the ignorance of the farmers regarding the existence of these benefits and the failure of the Govermental agencies to apprise the villagers of the benefits available

For the improvement of the agriculture, village level workers, Gramsevaks, or N E S. workers or C.A D P. workers should be asked to go and work in this village. They could be even given booster bonus and other incentives for working in the village, as is being done in certain remote areas of Arunachal Pradesh and Andamans.

These workers could also be given an agricultural production bonus in proportion to the increased production obtained annually as a result of their efforts.

As the farmers become seasonally unemployed, the Govt. should arrange to train these farmers in some small cottage industry which should provide them with suitable part time employment in the agricultural off season

The farmers of this village mainly produce Aush paddy, Aman paddy and jute The soil of this village and climate of this place is such that it is not possible for the farmers to produce much Aush paddy. Hence, if the Govt inspires the farmers to sow wheat instead of Aush paddy, more production of grains will be possible Moreover, soil should be tested to help the farmers select the most suitable crop.

Problems of Daily Labourers

The plight of daily labourers in this village is very bad As majority of the persons of this village are poor there is hardly any scope for labourers here The only time their services are needed by the farmers is at the time of sowing The rate of wages is extremly low. The only people who are comparatively well off are the self-employed skilled workers.

There is only one primary school About 39 per cent of the people. in this village are literate Not bad considering the all India literacy rate. 41.58% of the children of this village go to school. This might lead one to think that the school is crowded with pupils. Hov this is not so, regular atten is not there. Most of the pa prefer their children to stay from school and help them wit daily chores at home or at the or in their other work Th because of the poverty of the p

If the Govt were to make pr education compulsory the pro would be solved to a certain e Better still, would be to educa parents through adult literacy d Once educated they would u stand the significance of educ and send their children to s inspite of economic distress.

Medical Facilities

The only hospital is at Tufa which is situated two miles from this village Besides this, people from nearby villages to this hospital for treat However, due to poverty and i ance the inhabitants of this vi for medical treatment go to the v quack. Only in severe cases do go to the hospital

The people of this village from various diseases. Their rings are mainly due to lac hygiene, proper drinking facilities and sanitation At th of survey it was found that a all the houses were dirty. was no latrine in most of the h As the majority of the village illiterate they are quite ig about diseases It was foun Syphilis patients or T B. patient mixing freely with other memb the family They were taking from the same utensils and each other's clothes They di know that these diseases ar tagious.

Our country is not so ri this stage that health centres c established in every village. ever the Govt can make so rangement for the training village quacks The Govt s also educate the villagers in hygiene and sanitation.

Regd. No. D (D)-1:

Development Notes

IDA Credit For Farm Project

The International Development Association (IDA), a world bank affiliate, has approved a $ 30 million credit for an agricultural development project to help small farmers in Kerala. The project, will help improve the income of some 75,000 farm families dependent on coconut, rubber, pepper, cashew and other tree crops. "Major benefits" will accrue from increased output resulting from intensified and improved agricultural practices on 30,000 hectares of coconut rehabilitation and 10,000 hectares of pepper rehabilitation, and 5,000 hectares of new coconut planting.

Improved processing facilities to be provided in ten rubber crump factories (nine would be new) will yield higher income to 50,000 small holders by upgrading the quality of some 25,000 tons of lowgrade rubber a year. Seed gardens to be established under the project and the provision of research and extension activities will yield "far-reaching benefits to small farmers" in the state.

Housing Loans To Farmers

A sum of Rs. 93.4 million has been sanctioned by the Rajasthan State Housing Co-operative Farmers Society to 23,791 persons in rural Rajasthan to construct houses. The loan disbursed so far is Rs. 37 million. A total of 8.16 lakh house sites have been allotted in Rajasthan to weaker sections and small farmers.

In urban areas, 15,692 house sites have been allotted to weaker sections at a nominal price. Besides, the title deeds have been issued under the State Grants Act to 13,460 persons. Out of 86,762 ceiling cases in Rajasthan at the beginning of emergency, declared surplus of 5.89 lakh acres have been settled. Under the land ceiling laws the Government has acquired 4.91 lakh acres. Out of 4.91 lakh acres of land acquired, 2.84 acres have already been allotted. Amongst scheduled caste and scheduled tribes, the allotted land is 1.25 lakh acres.

Major Road Programme Launched

A Rs. 900 million massive road construction programme has been launched in Uttar Pradesh to open up new vistas of socio-economic development in the sprawling rural areas of the state, particularly the economically backward pockets. Under this programme construction of about 9,500 kms of roads had been undertaken this year for which the entire PWD machinery had been geared up to achieve the targets as early as possible.

Roads being the only lifeline in the hill regions of the State, in the absence of rail and other modes of transport, a number of new projects had been launched in the eight hill districts for providing missing links and to connect important growth centres, fruit belts and places of tourist importance.

Talcher Fertiliser Project To Go on Stream This Year

The third boiler of FCI's Talcher Fertilizer Project in Orissa has been commissioned. The other two boilers are already in Operation. These boilers are to supply steam to meet the process requirements of the project.

The boilers have been supplied by Bharat Heavy Electricals Ltd., Trichy, a public sector undertaking, and erected by their contractors, the Hindustan Steel Works Construction Ltd. Each of these boilers is capable of producing 182 tonnes of steam per hour at a high pressure of 95 kg per square centimetre.

The Talcher Fertilizer Project is one of the three coal-based Fertilizer Projects being constructed by the Fertilizer Corporation of India. The project with an estimated cost of Rs 1660 million will have a capacity to produce 495,000 tonnes of Urea per year and is likely to go on stream towards the end of this year.

Garments Spin Foreign Exchange

The ready-made garment Industry in India has emerged as a good foreign exchange earner during the last five years and garments worth Rs 250 crore were exported during 1975-76 against a mere Rs 18 crore in 1971-72. The export target of such garments was likely to reach a figure of Rs 1,000 crore by 1980. While cotton garments, including handloom, crepe, mill-made and silk garments had gained prominence, the garments from man-made fibres and woollen had shown a declining trend.

Out of the total export figure of Rs 250 crore, the export of handloom garments alo amounted to Rs 180 cror United States was the bigge market for our garments, fc lowed by the Soviet Unio Sweden, the United Kin dom, France, West German Australia, Japan, Canada ai the Netherlands. The Unit States and European Econ mic countries (EEC) account for 85 per cent of exports. The is a big untapped internation market for industrial clothi and military uniforms besid a wide scope for childre wear. Prospects for expo of winter garments, especial for polyester blended garmen are promising.

Big Rise in Foreign Exchange Reserve

India's foreign exchange reserves (excluding gold and SDRs) have shot up by more than 400 per cent, in the last 18 months to a record level of Rs 2,484 crore. They have now skyrocketed despite the repayment of Rs 296 crore to the International Monetary Fund in 1976. In the first 10 months of the current financi year, the reserves improved b Rs 913 crore over and abov the IMF repayment. In the co responding period of 1975-76 the improvement was muc more modest at Rs 311 cror which was mainly due to a bo rrowing of 200 million SDR from the oil facility of the IMF.

UN University Centre at CFTRI

The Central Food Technological Research Institute, Mysore, has been selected by the newly formed United Nations University established in Tokyo, Japan to train scholars from developing countries in the advanced techniques of post-harvest conservation and processing of foodgrains.

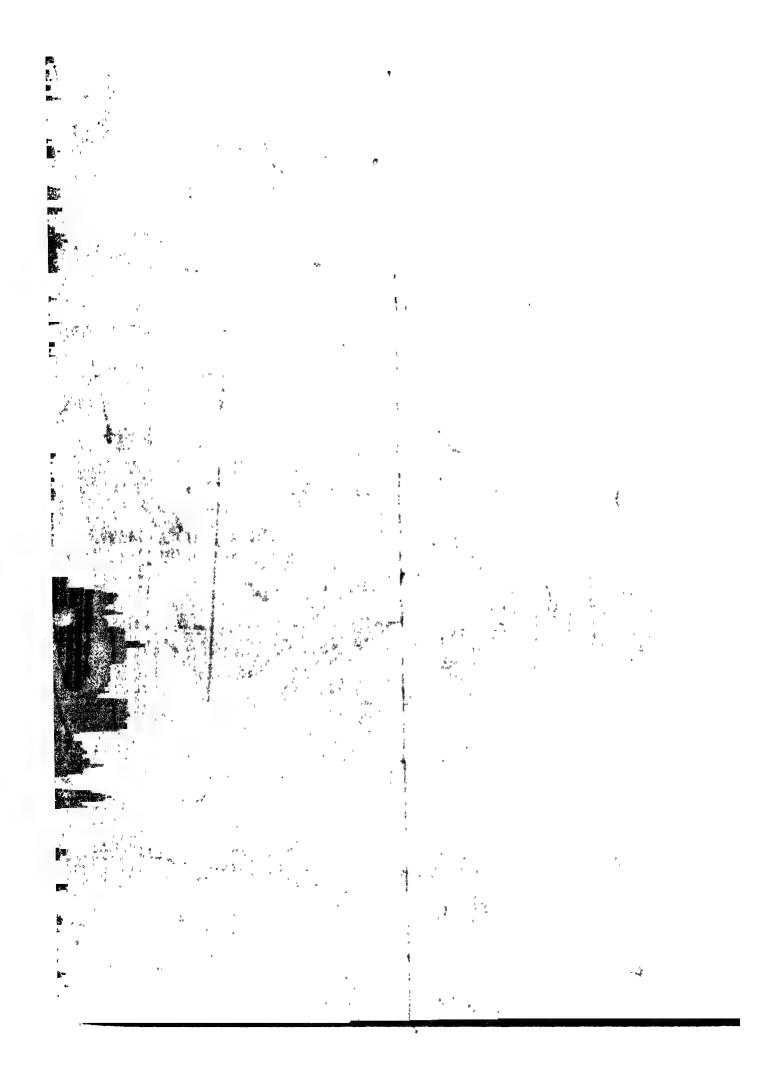
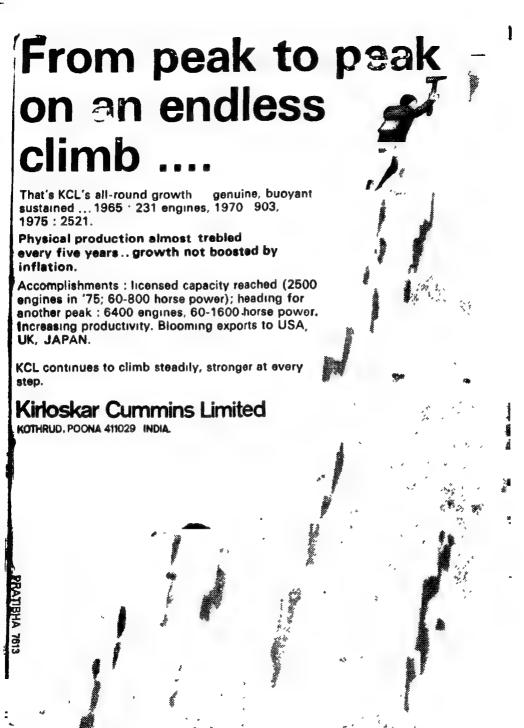
The CFTRI is the only institution selected by the UN University to provide advanced training and to identify specific research prior ties under World Hunge Programme.

The CFTRI will functio as an Associated Institutio of the University and wi provide both multi-disciplinar and applied training in pract cal areas of post-harvest foo conservation at appropriat levels through improved hand ling, storage and processin techniques.

New Technology For Rainfed Farming

The Punjab Agricultural University has developed a technology for ensuring good yields of wheat and maize crops in rainfed areas of the Punjab. Soil scientists working on a project at Garhshankar in Hoshiarpur district have found that wheat yields can be increased by as much as 150 per cent and maize yields by 60 per cent even in unirrigated areas. The techniques are efficient moisture conservation, proper fertilizer use and wise selection of crops and varieties suited to different soils.

It is not generally realised that Punjab has substantial unirrigated area. In fact about 70 per cent area in the districts of Gurdaspur, Hoshiarpur and Rupnagar in Punjab is rainfed making the crop yields as uncertain as the rainfall.

To ensure moisture conservation efforts should be made to help the soil to absorb every drop of rain water. Stirring the field with a plough and spreading available mulch (shrubs and leaves) help in absorbing the moisture, minimizing in the process the losses of both water and fertile soil. But it is generally not possible to retain the entire rain water on the field that receive it because the rainy season usually consists of a few storms whose intensity makes it im possible to retain the entire rain water on the field that receives it. This run off water should be collected in natural depressions or artificial ponds

Printed at Universal Advertisers E/2, Jhandewalan Extn, New Delhi-110055 and Published by the Director, Publications Division, Patiala House, New Delhi-110001.

YOJANA

Volume XXI Number 6
New Delhi
April 15 to 30, 1977
25 Chaitra 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan, but is not restricted to expressing the official point of view.

Chief Editor
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Editorial Office : Yojana Bhavan, Parliament Street, New Delhi-110001. Telegraphic Address : Yojana, New Delhi, Telephones : 383655, 387910, 385481, extensions 402 and 420, Circulation : Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription ; Annual—Rs. 18, Two years—Rs. 30. Three years—Rs. 42, Foreign Subscriptions : One year—£2.70 or $5.50. Two Years—£4.50 or $9.00. Three Years—£6.30 or 12 50 Single copy—eight pennies or $0.25.

EDITORIAL

PRICES AND HIGH PRICE[S]

Even as the Goverment and the people who elected i[t] are settling down after a brief and understandabl[e] spell of euphoria, the economic horizon is cloude[d] by the disturbing situation of rising prices of essentia[l] goods. Lentils, edible oils, pulses, tea and various othe[r] articles of daily consumption including vegetables ar[e] marked with high prices. The price of cement has gon[e] up by over 50 per cent and traders are reported to b[e] hoarding stocks. House rents have shot up all over th[e] country and only those who have no place to stay kno[w] how difficult it is to get a two-room flat in metropolita[n] cities. The most hard-hit are officials on transfer. Becaus[e] of the rising cost of construction and various othe[r] constraints on private housing, additional housin[g] accommodation is not being created to meet even [a] part of the growing demand.

This situation is not a post election phenomenon. Th[e] trend has been in evidence for over a year in regar[d] to commodities of daily consumption though the housin[g] problem was very much there in all its present seriou[s]ness even during the emergency, The differnce is tha[t] things are being reported now with greater freedo[m] and objectivity. Most of the retail merchants hav[e] consigned the pricetags to the waste-paper basket an[d] show a brazen 'take-it or leave it' altitude to th[e] customer. The danger is that price inflation, if allowe[d] to take its own cruel course, will upset plan expecta[tions], and pull back the pace of development.

It is gratifying that the new Government has reco[g]nised the seriousness of the problem in good tim[e]. The new levy of Rs. 5 per kg. on tea and the with[drawl] of its rebate scheme on its exports should hel[p] ease the domestic demand for this assential commodit[y]. What remains to be seen, however, is the response o[f] the trading community to the appeal made by the Unio[n] Minister of Commerce, Civil Supplies and Co-operatio[n] that they should act as trustees of public weal an[d] refrain from their gluttony for high profits. As thes[e] lines go into print, the Union Cabinet will discuss i[n] depth the price situation and devise measures to keep i[t] under check. In an effort to maintain a high level o[f] cement production of essential commodities the Unio[n] Government has already asked State Governments to re[]store power cuts in favour of industries engaged in manu[]facture of essential items like cement and Vanaspati.

It is equally important that the workers and manage[]ment should lend their shoulder to the common effo[rt] by withholding strikes and lock-outs, The new atmos[]phere of freedom should help and not hampar the proces[s] of production. Without optimum production no publi[c] distribution system can work smoothly and maximum suffering comes to the poorest of the poor. His sugges[]tion that informal committes with representatives fro[m] among management and workers should thrash ou[t] problems across the table has been given in the tru[e] sprit of democracy which was examplified in the rece[nt] poll. In a democracy restraints have to be voluntar[y] and self-imposed and there can be no truer vindicatio[n] of the people's will than for the workers and manageme[nt] to feel involved genuinely in the nation's welfare. Indi[a] is passing rhough a crucial stage in its history of deve[]lopment and the economics of democracy cannot b[e] divorced from the politics of it. The nation keenly look[s] forward to firm and imaginative handing of the situatio[n] by the Union Government.

COCONUT—*The Tree of Wealth*

NO OTHER CROP plant in the Tropics has so much to offer as the coconut palm. With its unbranched pillar-like steam and the massive and elegant crown of giant, featherlike leaves, it is a majestic and beautiful palm. The coconut palm grows as high as 25 meters and lives to a century. The solid trunk is 30-45 cm in diameter and is marked by ring-like leaf scars.

The utility of the coconut to the economy of the region where it grows cannot be over emphasized. In our country it has been extelled as the Kalpa Vriksha or the all giving tree'. The classical literature of India has glorified it as among the five *Deva Vrikshas* or Godly trees, providing a variety of products useful to the daily life. Legends have grown around its origin and there is the mythological story of the milky ocean which, on being churned, produced a froth from which five holy plants sprouted one of which was the coconut palm. The Indonesians say that the uses of coconut palm are as many as the number of days in a year. No epithet would suffice to convey the wide utility of this tree whose every part finds some use or other in our daily lives

In terms of geographical distribution, the coconut ranks first among the oil yielding crops of the world, followed by groundnut, cotton, sesame and oil palm, in that order. Grown in as many as 76 countries, half the total world production of nuts supports a great bulk of humanity for their livelihood. Oil, oil cake, coir and charcoal are the major products. Each one of these is put to further use in a wide range of manufactured products, for human or animal consumption and for making industrial products.

Mr Kunhikrishnan is Jr. Scientific Officer, C.P.C.R. Kasaragod

Kerala—The Land of Coconut

In India Kerala (*Kera* meaning coconut and *alam* meaning land) has the maximum concentration of the coconut palms. Majority of people in this thickly populated state depend on coconut either directly or indirectly for their livelihood.

Besides Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, West Bengal, Orissa, Maharashtra, Gujarat, Goa, Lakshadweep and Andaman Islands also produce coconuts in substantial quantities. Cultivated over an area of 1.1 million hectares, India produces

Peeling the coconut in a coconut farm in the Laccadives

K. KUNHIKRISHNAN

nearly 6,000 million nuts annually (Table). The area was 0.5 million hectares in 1920 and 0.6 million hectares about two decades ago. The industry now provides employment to over 10 million people. Coconut accounts for one percent of the country's GNP and two per cent of the total agricultural income.

Coconut in Our Daily Life

Coconut has always been an object of reverence in local tradition in India. It has a recorded history of over 3,000 years in our country. For all religious Hindu rites right from birth to death coconut or parts of it is a must.

"Narial Poornima" is a pompous celebration in the Konkan areas of Maharashtra where coconut is offered to the sea in worship on that day. Launching of a newly built ship or vessel in any part of the country from the large shipyards to country boatmaking units is marked by the ceremonial breaking of a coconut In all auspicious occasions, the *Kalasam* or "*Kumbham*" containing water for consecration in a vessel is topped by a coconut placed on mango leaves, and the "*Thamboolam*" given to the elders by the bride's party has a coconut. It is common to see devotees go to the temple with a coconut, betel leaves, arecanut and flowers to offer worship. In "Vettakkaran Pattu" a special offering in Vettakkarumakan temples of Kerala, coconut finds a prominent place Twelve thousand coconuts are broken in a few hours' time in worship to the jungle god born to Siva and Parvati. In the famous Ayyappan temple, it is the practice of every pilgrim to offer a minimum of five coconuts. The Orthodox Church in Kerala celebrates Palm Sunday with blessed tender coconut leaves to commemorate the triumphant and glorious entry of Jesus Christ into Jerusalem. The blessed palm leaves are taken home with reverence and kept at a venerable

Tapioca is a staple food of Kerala and this tuber is ideally suited for cultivation as an inter-crop in coconut plantations.

TABLE 1

Distribution of Coconut in India

States	Area ('000 hectares)	Percentage share	Production (Million) nuts)	Percentage share
1. Kerala	748.2	67.1	3718.7	62.4
2. Tamil Nadu	112.3	10.1	986.6	16.6
3. Karnataka	140.5	12.6	759.8	12.7
4. Andhra Pradesh	40 4	3.6	167.2	2.8
5. Maharashtra	8.7	0.8	50.6	0.8
6. Orissa	11.4	1.0	53.3	0.7
7. West Bengal	6.7	0.6	22.0	0.4
8. Assam	4.4	0.4	10.6	0.2
9. Goa, Daman, Diu	18.7	1.7	97.5	1.6
10. Andaman & Nicobar Islands	19 4	1.7	63.6	1.1
11. Lakshadweep	2.8	0.3	21.0	0.4
12. Pondicherry	1.6	0.1	19.9	0.3
13. Tripura	0.4	0.0	0.5	0.0
All India	1115.5	100.0	5961.3	100.0

(*Source*: The coconut Profile of India; Pub: Directorate of Coconut Development, Cochin-682011)

place as a source of blessing.

Despite several theories put forward on the origin of coconut we are still not sure where it first came from. The wide dispersal of the crop, its antiquity in the tropical countries where it is grown and the want of convincing evidence in support of its origin in any particular region render most of the theories incredible. The weight of evidence, however is in favour of its origin somewhere in south-east Asia.

A small holder's crop and its Problems

The average yield in India is 5344 coconuts per hectare. The highest yield is in Karnataka where it is 8785. Next comes Tamil Nadu with 5408 average nuts per hectare. In Kerala the average yield is as low as 4970. There are about 5 million coconut holdings in the country. Of these 98 per cent are only less than two hectares in extent (Table 2).

Though coconut has a profound influence on the agricultural economy of Kerala only 66% of the palms are in bearing stage. Because of the pressure on land with increasing population the palms planted at close intervals in homesteads compete for existence. At the recommended spacing one hectare of land can support only 175 palms, whereas in Kerala there are 225 on an average. The ravage of pests and diseases also takes a heavy toll of the crop in Kerala.

Although control schedules are available for all the pests and some of the diseases, maladies like the root (wilt) disease prevalent in south India continue to baffle the scientists. This disease which appeared in 1882 after the great floods is prevalent in about 2.5 lakh hectares and causes an annual loss of Rs 300 million to the national exchequer. Concerted efforts are in progress at the Central Plantation Crops Research Institute, Regional Station, Kayangulam in Kerala, to find a lasting solution to this national problem. Localised problems like the Tanjore wilt of Tamil Nadu, Thatipaka disease of Andhra Pradesh and stem bleeding are other maladies plaguing the coconut palm. Such diseases of uncertain aetiology are not peculiar to India alone. Other countries also have such problems. Cadang Cadang (meaning dying dying) of the Philippines, lethal yellowing of Jamaica, Tinangaja of Guam, leaf scorch decline of Sri Lanka, and Cape St. Paul wilt and Kaincope disease of West Africa are some among them.

A Reliable Source of Income

Coconut is a tree that gives continuous yields once it starts bearing after 6-8 years of planting. After every 30-40 days, the grower can harvest a bunch. Heavy bearing trees are usual sights in the backyards of houses evidently due to the favourable conditions. The farmer is assured of 80-100 nuts per tree in a year worth about Rs 100. With 5 to 10 trees in the homesteads, the purchasing power of the family is considerably enhanced. In large scale cultivation the crop gives an annual income of about Rs 5000/- per hec. under rainfed conditions. An interesting feature of this crop is that it can accommodate a variety of other crops along with it. However, to the detriment of coconut crop this has been made use of by farmers resulting in an unscientific approach to cultivation.

Hybrid coconut palm evolved from Laccadives and Ganga Bondam.

Intensive cropping systems with other perennial and annual crops is a highly paying proposition. Of the many crop combinations, one termed as "multi-tiered cropping", coconut + pepper + cocoa + pineapple gives a net return of nearly Rs 17,000 per hectare annually under conditions of ideal management. While such crop combinations require additional inputs, they offer several advantages like additional employment for the otherwise wanted surplus labour, generate organic wastes that could be recycled and improve soil health and fertility. With almost the same quantity of water these additional crops can be maintained. Coconut growing areas are characterised by a high density of population and thus the crop is a boon to the small farmer. Research conducted so far shows that the coconut is ideally suited for a balanced plant-animal-human eco-system in which perfect harmony between these three life patterns can be achieved to their mutual advantage.

Copra being peeled at a Government farm in middle Andamans.

Coconut Oil

The most important commercial product of coconut is its oil. Oil

An interesting freak coconut palm with four branches found in Car Nicobar

is obtained from the dried kernel, called copra. Four-fifths of the copra produced in India is used for milling and the remaining is considered directly. Coconuts are dehusked and broken into halves, the water drained off and the split halves dried in the sun or in kilns. The content of copra varies between different varieties, seasons of harvest and maturity of the nut However the average oil content works out to a little over 60 per cent. Modern extraction methods employ hydraulic presses, expellers and solvent extraction procedures. The price of coconut oil is related to the prevailing prices of other edible oils like groundnut, gingelly, mustard etc. These being annual crops, their area as well as production fluctuate unlike in the case of coconut. As it happened in 1975 which was a bumper crop year, it was the coconut that suffered because of the surplus oil from these crops. For a coconut farmer, this will adversely affect the economy because of the peculiar nature of the crop There is a case therefore for a minimum floor price for coconut.

Three-fourths of the oil produced in our country is reported to be used as cooking medium. Only the remainder is consumed by the industry in the manufacture of soaps, toiletries and, to a small extent, in the manufacture of Vanaspati. The left over oil cake is an important cattle feed.

Tendernuts and Toddy

Tender coconut is a popular drink wherever the palm grows. It is said that as many as 51 million tender nuts were sold in 1951 in

TABLE 2

Size of coconut holdings in India

Area of holding (in hectares)	Percentage of holdings of different sizes			
	Kerala	Tamil Nadu	Karnataka	Andhra Pradesh
Less than 0 2	37.1	69.1	52.5	56.5
0.2—1.0	52.8	26.0	42.9	41.7
1.0—2.0	7.9	3.2	3.6	1.8
2.0 and above	2.2	1.7	1.0	—

(*Source* · Coconut Profile of India)

Bombay alone ! Almost the entire production of coconut in West Bengal is consumed as tender nuts, mostly in Calcutta. Tender nut is valued both for its sweet water, a most refreshing drink, as well as the gelatinous kernel, which is a delicacy with food value. Sugars, salts and amino acids are important constituents of nut water. It is used as a nutrient medium for microbes and plant tissue and cell culture and also administered as an intravenous infusion. It is strongly advised in cases of severe gastro-enteritis to correct the fluid balance. It also has aparient and diuretic properties.

Young inflorescences when cut, termed 'tapping' give a sweet sop called *Neera* which is a refreshing beverage. On fermentation it becomes toddy, an alcoholic drink On an average, a palm yields 1·5 litres of sweet toddy everyday Sweet toddy is refrigerant and the main component is soucross It also contains ascorbic acid. Toddy industry is an important source of revenue for Kerala, Goa and Karnataka. It adds about Rs. 150 million annually to the revenue of Kerala and provides employment to over 50,000 persons through the nearly 3,000 toddy shops. Fresh fermented toddy is also useful as a source of yeast in bread making.

The Golden Fibre-Coir

India accounts for half the total world production of coir. This golden fibre earned India foreign exchange worth Rs. 180 million last year. We hold a virtual monopoly in the production of spun yarn which is the starting material for the manufacture of floor coverings and coir ropes. The Indian coir industry produces

Exposed kernels of dwarf orange and dwarf and tall variety hybrid.

A palm fringed beach in one of the Nicobar island.

a wide variety of attractive products like mats, carpets, yarn etc Because of the abundance of natural retting facilities, Kerala alone accounts for more than 90% of the total production of coir in the country, with Tamil Nadu and Karnataka making up the rest.

Coir mats and mattings are produced on handlooms in our country and the industry is over a century old In contrast, the European production of mats and mattings is mechanised and power looms capable of producing high quality sophisticated coir products are in operation. Fully mechanised western industry is posing a serious threat to the handlooms in India. It is primarily the European coir industry that has, by effective marketing, kept coir mats and mattings on the shopping list of modern housewives. We have started manufacturing rubberised coir but this sector now caters only to the indigenous market. Concerted efforts and research work is in progress at the Central Coir Research and Training Institute of the Coir Board at Alleppey, on all aspects of coir.

Research and Development

Though coconut was said to be in existence from time immemorial, systematic research on the crop was started only in 1916 in India. The area under coconut was at that time the maximum in the Madras Presidency of those days With a view to studying the requirements of the crop under different soil types, research farms were established in 1916* at Kasaragod and Nileshwar (Cannanore district, Kerala) and scientific investigations commenced. Fundamental studies were initiated in the early 20's to obtain informatio on the genetical and manageme aspects of the crop. With a view t improving the genetic stock, exot varieties were introduced from diffe ent coconut growing countrie At present the varietal collection a Kasaragod comprises 64 exoti from 26 countries and 32 indigeno varieties, the largest collection c coconut varieties in the world.

The first coconut hybrid wa produced in the 30's by crossing loca West Coast Tall with Chowgha

Turmeric (above) and Cocoa (below) being grown as an inter-crop in a coconut garden in Kerala.

*The CPCRI, Kasaragod, celebrated the Diamond Jubilee of Coconut Research in the country from Decembe 27, 1976 to January 8, 1977. An International Symposium was also organised as part of the celebrations.

Composition of coir exports from India

Commodity	1971-72		1972-73		1973-74		1974-75		1975-76	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Coir Fibre	392	6.25	298	4.62	276	3.77	161	3.05	2.66	6.94
Coir Yarn	30,642	722.42	31,924	818.58	28,373	822.01	24,401	826.71	22,970	1,002.19
Coir Mats	13,498	507 50	12,742	526.50	12.302	573.28	11,322	646 52	7,488	562.48
Coir Mattings Rugs & Carpets	7,101	240.40	3,648	132 53	3,457	140.40	5,049	263 29	6,275	337.11
Coir Rope	238	3.85	104	1.54	140	2.84	138	3.47	270	6.70
Curled Coir	441	5.52	773	9 81	1,208	15.49	762	10.40	1,014	17.52
Rubberised Coir goods	—	—	—	0.01	3	0.39	1	0.17	1	0.26
Total	52,3121	485.94	49,489	1,493 79	46,759	1,558.18	41,834	1,753 52	37,284	1935.20

Quantity in quintals, Value in lakhs of rupees

Dwarf Green. In the early forties further progress was achieved on the breeding aspects of the crop. Investigations were also initiated on the crops that could be grown in the interspaces of coconuts as well as on cover crops in the garden The superiority of the hybrids to its parents has been well recognised and in order to meet the increasing demand from coconut growers large scale production programmes are being implemented in the states of Kerala, Karnataka, and Tamil Nadu The root (wilt) disease has been a major disease of the crop since 1880 In order to tackle the disease problem as well as other diseases and pests a Research Station was set up at Kayangulam in 1947 For investigating the local problems a few other research centres were started in the important coconut growing regions of the country in the 1950s

During 1970 the Indian Council of Agricultural Research reorganised the research set up on plantation crops, including coconut, and the Central Plantation Crops Research Institute (CPCRI) was set up with the headquarters at Kasaragod The Nileshwar centres are now with Kerala Agricultural University and the Kerala State Department of Agriculture. These centres are still leading centres of coconut research in the world An All India Coordinated Crop Improvement Project, started functioning in 1971

The CPCRI has now five Regional Stations, seven Research Centres and Two Seed Farms spread in different parts of the country. It has 71 scientists working on 46 major research projects on coconut in all the different specialised branches of agricultural science Besides, 55 scientists are working on 48 experiments at 13 co-ordinating centres located in eight states.

Altogether, there are 23 centres in our country where scientific research is being done on coconut The average annual expenditure on research is approximately Rs 7 5 million

The National Commission on Agriculture has projected that by 2000 A D our requirement of coconut would be 13,585 million nuts If the available technology is effectively transferred to farmers fields, we could even be a major exporter of coconut to the international market. □

Tea industry occupies an important position in our national economy. It provides employment to 8,50,000 workers and contributes 1.25 per cent to the GNP. Tea exports account for about 7 per cent of the country's export trade. With an annual crop of 500 million kilogrammes we produce more than what the rest of the world produces. Our yield per hectare (1360 kgms) is also the highest in the world. Yet the industry suffers from severe drawbacks.

Tea Industry—

MORE INCENTIVES NEEDED

P. V. KRISHNA RAO

IN INDIA TEA is grown in Assam, Cachar, Darjeeling, Dooar, Terai, Tripura, the Nilgiris, the Annamalais, High Ranges (at Munnar) Wynaad and Kerala The production of tea increased from 431 million kg in 1971-72 to 510 million kg. in 1975-76 an increase of 18.3 per cent in four years, while the exports show only 1.4 per cent increase during the same period This may be attributed to increase in the domestic market

India exports tea to more than twelve countries. Indian tea has come to be recognised as an important commodity in foreign markets Sizeable quantities have been sent to UK, USSR, Netherlands, Iran, U A R. and other countries Britain has been the largest importer and consumer of tea and India has been the major supplier In 1975 India exported 81 million kg. to UK which accounted for 37.1 per cent of the tea imports of UK, as compared to 108 million kg in 1950 which accounted for 65 per cent of the total tea imports of U K But East African countries recorded a very sharp increase during this period, the increase being from 2.8 per cent to 29 per cent. In absolute terms the increase was from 4 million kg to 63 4 million kg

The total value of exports of tea has risen from Rs 1550 million to 2360 million during the period of four years. This indicates an increase of Rs 810 million during four years India's tea export trend has been further analysed in terms of value Export earnings from all commodities have increased by 145.2 per cent from 1971-72 to 1975-76, while earnings from tea exports show an increase of 52 26 per cent during the same period. It is interesting to note here the rate of increase of tea export earnings is much less than the rate of increase of the total earnings. The reason may be attributed to the lower rate of increase in exports of tea as compared to exports of other commodities like sugar The share of tea in percentage to total export earnings has also decreased from 9 6 to 6 per cent during the same period

There is no significant improvement in production or in export performance Exports have stagnated at 200 million kg a year The share of India in the total world exports has also fallen from 45 to 29 per cent between 1951 and 1975 The country would need 1,500 million kg of tea to meet its domestic demand alone in 25 years. Therefore, the need is to increase production and productivity and also find ways and means of improving export performance

The major problem of the industry relates to the replantation of overaged bushes It is estimated that almost a third of tea plants in North-Eastern India is more than 50 years old The proportion in Southern India is even higher, the total for the whole country works out to about 1,30.000 hectares out of a total area of nearly 360,000 hectares Higher levels of productivity can be achieved with systematic replantation and careful tending of over aged bushes. But replantation schemes are not being implemented vigorously as it might result in a loss of income for some years. The Tea Board has a replantation subsidy scheme in operation since October, 1968 which provides Rs 5,000 and 4,000 per hectare for gardens in hilly regions and plains respectively. The industry feels that these rates are very low. Its own estimates of the subsidies needed for steady replantation are Rs 30,000 and 22,000 per hectare respectively In addition to the replanation subsidy a pool can be created by which the small growers can be benefited for the loss of income that would arise out of replantation on the understanding that a portion of additional income accrueing in later years will have to be repaid to the pool against payments received in earlier years. Some allowance should also be given to the industry in respect of depreciation in value of fixed assets as in the case of rubber in order to generate the required resources for replantation. Production can also be increased by propagating high yielding varieties, by planting new bushes between two lines of tea plants and by extending the area under the crop. It has been reported that the availability of additional land for growing tea may not be more than 50,000 hectares.

Sick Gardens

A task force set up by the central commerce ministry found that sickness is generally confined to that sector of the industry which is controlled by individuals or partnerships Managements of such gardens, with some exceptions have been deficient in their knowledge and capability of sound management. Government can take over the managements and restore the gardens through the Indian Tea Industries Development Corporation. But the Government can utilise is expertise either by way of a contract or by making it subsidiary to any Government Agency like Tea Trading Corporation of India or proposed Tea Corporation of West Bengal. Sick gardens in Assam can certainly be expected to be looked after by the Assam Tea Corporation which has been doing

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extremely well since its inception Other State Level Corporations may be set up for taking over sick gardens in their respective areas. A new Corporation can easily be set up to work in close colloboration with Tea Board.

Yet another problem of the industry is lack of adequate finances for modernisation. Of the institutions now providing term finance to tea industry, Tea Board is perhaps the most important administering two financial schemes, the tea plantation finance scheme with a fund of Rs. 45 million and the Machinery and Irrigation Equipment Hire Purchase Scheme with a fund of Rs 90 million The scale of assistance under the first scheme is however meagre. Rs. 11,250 per hectare in plains and Rs 12,750 for those in the hills It is suggested that should be raised to Rs 20,000 and 22,000 respectively. Loans provided under the second scheme cover fully the initial cost of machinery and equipment and the loan is repayable in ten or less instalments. But the maximum value of machinery and/or equipment that may be purchased by one tea estate or factory is not to exceed Rs. 6 lakhs. The industry feels that the existing ceiling is low and so it is suggested that the ceiling should increase from Rs 6 lakhs to Rs 10 lakhs An indirect source of finance for the tea industry is the Agricultural Refinance Corporation, but the quantum of assistance availed of from the Corporation is not large There is a good case for greater finance from out side, than the Tea Board has been giving so far The facilities of all-India financial institutions such as IDBI and IFCI should be extended to this industry. The funds of the World Bank and International Development Association (IDA) can also be made available to this industry

TABLE—1

Production of Tea in India 1974-75

(Million Kgs.)

Name of the Region/State	Total Production	Percentage to total production
Assam	237	48.4
Cachar	28	5.7
Darjeeling	11	2 2
Dooar	92	18 8
Terai	15	3 1
Others	6	1.2
Total	490	100 0

Source: Kothari's Economic and Industrial Guide of India 1976

TABLE—2

Tea Exports

(Rs. in lakhs)

Country	1971-72	1974-75
Afghanistan	6 46	6.19
Australia	2.05	3.49
Canada	2 83	4 09
F R.G	3 84	7 66
Iran	4 16	13.82
Irish Republic	4.13	5 27
Netherlands	2.00	15.48
Sudan	12 56	7.01
U A.R.	7.37	10.59
U K	50.29	50 81
U.S A	6 06	6 15
U S S R	32.99	59.52
Other countries	20.24	31.40
Total	154 99	221 48

Source Report of Currency and Finance, 1974-75 Eastern Economist October 15, 1976

Regarding short-term finance, industry complains that some banks are not following the recommendations of the Reserve Bank of India. So, the RBI should look into the matter and see that banks implement its directives

Lastly due to heavy taxation and labour costs rising faster than the prices and productivity many estates have not been able to take up development and maintenance work The Government should reduce excise duty rate to the level of 10 paise per kg which is charged on green tea

Certain incentives can also be given such as rebate of full excise duty on exported tea This would not only ensure the present level of the tea exports in quantity but would also give encouragement to exporters to put in more tea for export and also push up sales in those countries where consumption is low The industry also must show initiative and enthusiasm in promoting exports to traditional and new markets Greater attention will have to be paid to sophisticated and aggressive mass promotion compaigns The International Tea Promotion Associations composed of the World's major tea producing and exporting countries is to be formed shortly with promoting tea consumption as the main objective This may help in boosting tea exports to countries where consumption is low and enable the tea industry to grow at a faster pace □

TABLE—3

Value of Tea Exports

(Rs. in million)

Year	Total Export Earnings	Value of Tea Exports	Share of Tea in percentage
1971-72	16082	1550	9.46
1972-73	19708	1452	7.36
1973-74	25234	1420	5.63
1974-75	33041	2214	6.68
1975-76	39416	2366	5.98
1976-77	NA	2600	NA

NA — Not Available

Source: Report of Currency and Finance, 1974-75 Records and Statistics Jan-March, 1976
Eastern Economist October 15, 1976

THE GREEN GOLD

S. K. SHUKLA

THE SANDAL WOOD is one of the oldest known items of perfumery and finds a place in records as far back as 400 B.C. From the Vedic times the tree has been revered, respected and protected. The wood has been associated with Indian culture and civilization through its various usages in all religious functions. It is classed as 'royal' tree in Karnataka State and the Government has the right to extract the tree even when found on private land. The land-owner is, however, granted bonus depending on the sale price of the tree.

The genus *Santalum* is endemic to the Southern Hemisphere except *Santalum album* which is fairly well distributed in the northern part of Southern India It is believed to have been introduced from Indonesia in the remote past According to another view, Sandal is indigenous to India The wood finds a pleasant mention in Indian mythology, folklore and scriptures 'Kautilya' described a variety of Sandalwood in his 'Arthasastra' (200 B C) Also it finds a mention both in 'Ramayan' and 'Mahabharat' There is sufficient evidence that this species has been in India for the past about 25 centuries

It will be of interest to know that it is a root hemi-parasita and possesses a wide range of nearly 300 host species, with which sandal forms root attachments (haustoria). Like human beings it differentiates between 'good hosts' and 'bad hosts' The health of the tree (like human beings) depends on the hospitality of the host. It obtains its requirement of lime and potash directly from the soil while for nitrogen and phosphorous it partially depends upon its host

It flourishes best in Karnataka and Tamilnadu in the upland pleataus between 650 to 1150 m. and rainfall between 60 to 115 cms. under conditions of drainage Though it grows at its best on rich, fairly moist and fertile soils, it frequently occurs on rocky ground where trees occur mainly in open scrub forests In such locations, the tree does not attain large dimensions but possesses more highly scented wood It grows well under shade unless it is too dense. It is a small to medium sized evergreen tree with slender branches sometimes reaching to a height of 18 m. and 2·5 m. girth It has been growing in M.P. and also in Bundelkhand region. Introduction in Rajasthan, Orissa, Gujarat and in the 'Tarai' and foothills of the Himalayas in UP have shown good growth but poor heartwood formation In Dehra Dun forests too it grows as if it was natural to the region but the oil content is very low and growth is very slow It has been successfully introduced in Kerala and grows apparently in wild form both on the hills and in the low country. In Andhra Pradesh it has established in Cuddapah, Hyderabad and Kurnool districts and also in Chittoor and in Anantapur.

It has become naturalized in Chittorgarh, Banswara and Jhalawar districts of Rajasthan mostly on the trap formations It is an important species recommended for dry-zone afforestation Natural reproduction of the tree from the introduced plants in Ajmer has been reported. The tree has been introduced in the areas served by Ganga Sagar dam in Gujarat and in Mandsur and Ratlam districts of M.P. It is growing on Parasnath hills in Bihar and in West Bengal where some of the trees have developed fair-sized scented heartwood. The tree has picked up well in Assam as well.

Contrary to the general belief the genus *Santalum* grows in parts of Malaysia, Australia, Newzealand, Polynesia and extends up to Hawaiian Archipelago Of all the species, the *Santalum album* growing in India is the most important In market it is known as East Indian Sandal wood and the oil is also named after it. Both wood and oil are priced for their use in perfumery and for medicinal use The wood is one of the finest for carving and is employed for making curios of exequisite beauty coupled with the sweet smell they carry No Hindu worship appears to be complete till sandalwood paste is applied on the deity as well as on the forehead of the man worshipping the deity Scented sticks (agarbattis) always carry the fragrance with them in houses, functions and practically in all places of worship

Most of the sandalwood is obtained from the natural forests and some quantities from plantations and those growing in agricultural fields and village lands Large scale plantations have been tried in Karnataka and Tamilnadu but because of insufficient understanding of the host-parasite relationship, lack of

Final dressing, Sapwood being removed from billets and rootpieces Shavings being collected on gunny cloth and sapwood chips seen in the rear.

protection from animal grazing, man, drought, fire, excessive weeds, unfavourable climatic conditions the devastating sandal-spike disease, the mortality has often been high and more than 10 to 15 trees per acre are not found Mixed forests are preferable. It does well in Eucalyptus plantations, because of the congenial host and at the same time because of less chances of spike infection

It reproduces plentifully from seeds dispersed by birds and to some extent from root suckers Germination is profuse immeidately after the monsoon It is important for natural regeneration that suitable hosts like *Acacias*, *Albizzia lebbek*, *Azadirachta Indica*, *ziziphus* spp *Bamboo* spp. *Bassia* spp *Casias*, *Dalbergia* sissoo. *Eucalyptus* app *Gossypium arboreum*, *Grevillia robusta*, *Tectona grandis*, *Terminalia*, spp. etc. be maintained It finds a very good host in the abominable Lantana Camara but it is better to avoid it as it is suspected to be connected with the transmission of spike disease and giving abode to the disease carrying insects. In favourable site, at the end of about fifteen years, when incipient heartwood appears, the saplings attain a height of 10 m. Growth of the tree under natural forest conditions shows considerable variations reflecting environmental influences

This valuable tree is most susceptible to spike disease which often forms a virulent epidemic status in major sandal forests in South India, greatly reducing the yield of heartwood. In the diseased plants the leaves diminish in size, become stiff and spike like acquiring a reddish or yellow tinge and the shortened internodes give the characteristic 'witches' broom. The disease manifests itself in about seven months, resulting in death in about two to three years, depending on the girth The disease was first discovered at the close of the nineteenth century in Coorg The disease has been noticed only in India and was earlier suspected to be due to virus but later studies reveal the mycoplasmal etiology. Lot of work has been done to control this disease, without success. Forest Research Institute, Dehra Dun is busy studying the spike pathogen, the mode of its multiplication, pathogen-pathogen plant hosts-insect vector-vector plant hosts relationship, insect vector biology and ecology for finding out a much sought after control measure. It has been suggested efforts be made to change the genetic constitution of the tree so that a better tree was evolved which would be disease resistant and richer in oil content Experiments on these lines are in progress at the Forest Research Institute, Dehra Dun and tetraploid saplings have been successfully produced which are growing well The assessment of success can be had only after the heart-wood formation

The harvesting is very interesting, as unlike other trees it is not cut, but uprooted (as oil content in roots is the highest). The various pieces are reassembled on the ground to form a replica of the original tree the individual pieces are serially numbered and described with a rough sketch of the tree as a whole, to ensure that no piece is illicitly removed and reaches the depot safely The sawdust of this costly timber is also carefully preserved and has a good market. Heartwood containing world renowned essential oil is used mainly for distillation, the remaining wood being used for carving and incense making etc The darker the wood the higher the oil content. The oil content of the heartwood fluctuates with locality and age of the tree and the average ranges between 4.50 and 6.25 per cent. The roots may yield oil upto 10 per cent. The admixture of heartwood and sapwood has about 1.5 to 2·5 per cent. The oil content of heartwood grown in regions other than Karnataka and Tamilnadu is about 2 per cent. Karnataka alone gives an average of about 2000 tonnes of wood per annum which comes to about 60 per cent of the world trade in this valuable wood. The annual production of sandal wood oil in India is around 100 tonnes priced at about Rs. 650 per kg This is a foreign exchange earner since 1918.

The oil is widely used in perfumery, soaps, fac creams, toilet powders and other cosmetics. During the early part of 20th century, a large proportion of oil was used for medicinal purpose, but now the requirement is not more than 10 per cent. Both the wood and the oil are credited with cooling, diaphoratic, diuretic and expectorant properties.

There are three types of sandalwoods in the trade viz (1) East Indian Sandalwood, (2) Sandalwood of the Pacific group and (3) Australian Sandalwood The price of heartwood ranges from Rs 30,000 to Rs 40,000 per tonnes and that of the sapwood about Rs 300 per tonne. Sandal woodchips, dust, carvings and oil are exported from India to Japan, Hongkong, Nigeria, Singapur, U S A., Saudi Arabia, Ceylon, Europe, U S.S R, Sudan, Malaysia etc. and are a very good sources of earning foreign exchange

Sandal trees are really green gold and unlike minerals with little bit of care it can be an inexhaustible source of revenue India has the monopoly in exporting East Indian Sandalwood oil. Because of the disease, pilferage and smuggling, the productin of sandalwood is on the decline. It is, therefore, necessary that more trees be grown in forests, plantations, vacant village lands, urban areas etc so as to boost the supply of this valuable foreign exchange earnings specie □

SUGAR—

A Valuable Foreign Exchange Earner

Sugar ranks second among the major agro-based industries in the country. It is a valuable foregin exchange earner. During 1975-76 it earned about Rs. 464 crore in foreign exchange for the country. It provides direct employment to 3 lakh workers. A large number of farmers are also engaged in the production of sugarcane.

B. A. IQBAL & SALA HUDDIN

SUGAR IS AN agro-based industry. It ranks second among the major agro-industries in the country Located in rural areas sugar industry has provided the most effective instrument for carrying progressive trends into the countryside As sugar is an essential food item, used by almost all peoples of the world, its contribution to country's economy is also of paramount significance

The sugar industry provides direct employment to about 3 lakh workers. About 25 million agriculturists are also connected with it. It earns about Rs 4640 million in foreign exchange Besides the industry supports a number of ancillary industries in the country and contributes Rs 3000 million to the central and state exchequers The capital employed in this industry i of the order of about Rs 7500 million crores and its products are valued over Rs 10,000 million Indian sugar accounts for about 12 per cent of the country's export trade.

The chief sugar producing states in the country are Maharashtra, Uttar Pradesh, Andhra Pradesh and Tamil Nadu. These states account for nearly 79 per cent of the total production. Sugar is also produced to a smaller extent by other states like, Bihar, Gujarat, Haryana and Punjab. The state-wise production of sugar is given in table 1

The production of sugar during 1974-75 was 47 lakh tonnes as compared to 39 lakh tonnes in 1973-74 The entire increase in output (21 per cent) was brought about by the rise in output in Maharashtra and Uttar Pradesh, which account for 62 percent of the total sugar produced in the country. In the last twentyfive years the production of sugar has increased from 1,118 thousand metric tonnes in 1950-51 to 4,794 thousand metric tonnes in 1974-75 i.e. an increase of 328 per cent. Domestic consumption during the same period has increased from 3 kg to 7 kg i.e. 250 per cent. These figures highlight the fact that the rate of increase in sugar production is higher than the rate of increase in consumption. Sugar export commenced in India in 1956-57. Since then our exports have increased quite a lot. However in recent years some returns had to be guaranteed to the Indian exporters because of the low prices ruling in the world market. In any event sugar has come to occupy an important place among our major foreign exchange earners.

TABLE 1

Production of Sugar in India in 1974-75
(000 Metric Tonnes)

Name of State	Production	Percent to total product
Maharashtra	1515	31.56
Uttar Pradesh	1413	29.81
Andhra Pradesh	397	8 27
Bihar	212	4 41
Karnataka	336	7.83
Tamil Nadu	384	8 62
Others	537	9.50
Total	4797	100 00

Source: The Economic Times, Bombay, September 21, 1976. and Indian Sugar, New Delhi June 1976

Over the last few years the demand for sugar in the international market had outstripped supply owing mainly to crop failure in Cuba as a result of which the world price of sugar tended to soar very high. This helped no end in pushing up the exports of Indian sugar in 1974-75. However, during 1975-76 the price of sugar fell steeply in unit value in international market from Rs 4,509 per ton in 1974-75 to Rs 3135 per ton during 1975-76. The decrease in price was, however, made good by doubling the quantity of sugar exported, Our exports touched 12.01 lakh tons in 1975-76, as compared to 6.94 lakh tons during 1974-75. The total export earning from sugar increased to Rs 4640 million including a rupee profit of about 1700 million by the Government i e. an increase of 25·4 per cent, from Rs 3390 million in 1974-75. Such large exports were possible because of the sharp increase in sugar output during the year 1974-75 season, when it reached an all time record figure of 4·79 million tonnes. The industry could indeed be proud of this achievement. Unlike many other commodities the increase in foreign exchange from sugar exports was due mainly to the increase in the quantum of exports. The following table indicates the year wise position of sugar exports fron 1958-59 to 1975-76.

TABLE 2

Sugar Exports Between 1958-59 to 1975-76

Year	Quantity Exported (Lakh tons)	Value Earned (Crores)
1958-59	.54	2.54
1959-60	39	1 66
1960-61	2 47	3 28
1961-62	3.29	15.34
1962-63	5.26	18.03
1963-64	2 69	27.26
1964-65	2.70	18.21
1965-66	3 92	11.83
1966-67	1.85	17 75
1967-68	1.25	16.44
1968-69	0.84	10.46
1969-70	2 17	15.80
1970-71	3.25	30.20
1971-72	1 00	31.03
1972-73	.97	13 30
1973-74	2.52	42.69
1974-75	6.94	339 01
1975-76	12.01	464 00

In terms of value, while export earning from all commodities increased by 591.58 per cent during 1959 to 1976, earnings from sugar export showed an increase of 2572 72 per cent during the same period India exports sugar to over 10 different countries of the world of which Iran buys almost 40 per cent of the total sugar exported U.S.A. and U S.S.R are some other big buyers of Indian sugar. However Iran emerged as a single big buyer for Indian sugar in 1974-75 only, when our exports to this country suddenly jumped up from .21 lakh tons valued at Rs 4 crores in 1973-74 to 2.78 lakh tons valued at Rs 144 crores during 1974-75. The offtake by othe buyers during 1974-75 was Sudan Rs 45 crores, Indonesia Rs. 35 crores, U S.A. Rs 26 crores. U.A.R Rs 20 crores, Yeman Arab Republic Rs 12 crores, South Yeman Republic Rs 10 crores, Jordan Rs 11 crores, Morocco Rs 11 crores. The S T.C which is the channelising agency for sugar is hopeful of exporting sugar in substantial quantities during 1976-77 too.

Factors Affecting Sugar Production

Unfortunately, the rising trend of sugar output could not be maintained during the financial year 1975-76 due to variety of factors beyond the control of the industry. Sugar output declined to about 4.25 million tons (estimated). The two main factors which affected production are firstly withdrawl of excise rebate and secondly, continuance of the disproportionately high rate of excise duty on free sugar at 45 per cent ad valorem with consequent widening of tax disparity between sugar and khandsari, enabling the later to divert large quantities of cane. Because of decline in production, exports had to be curtailed On current reckoning only about 6 lakh tons sugar is likely to be available for exports from the 1975-76 season's production indicating a fall of more than 50 per cent. This is really unfortunate because the world prices have been almost established at quite an attractive level of around £ 200 per ton. According to an estimate the price of sugar will continue to remain stable in foreseeable future, therefore the need for the hour is to maximise the sugar output in the coming season i.e 1976-77 so that we are not only able to cover the lost ground but also are able to increase our exports further.

Production of sugar depends upon the quantity and quality of sugar cane available to sugar factories Thus, the problem of supply of adequate quantities of high quality sugarcane at an economic price is of paramount significance. Indian sugar industry, particularly in North India, is bounded by two factors: poor quality of sugarcane and its high price due to lower yield per hectare. Low productivity of sugarcane is the result of following old method of cultivation, inadequate use of manures and lack of sufficient. irrigation facilities and disease-free seeds. By and large, the requirement for raising cane productivity is quite well known and is the chief aim of the Cane Devalopent Programme No less important is the need for evolving new varieties of cane and for devising new scientific method of cane cultivation

Another important factor affecting our sugar exports is the high cost of production of sugar, which itself is the result of the high cost of raw material i.e sugarcane sulphur, Government taxes and manufacturing charges. It has been calculated that price of sugarcane accounts for about 45 per cent of the cost of sugar followed by Government taxes—cane seed, sales tax, income tax, excise—which constitute aboute 35 per cent of the cost of sugar, Other manufacturing charges like price for store, packing fuel, labour etc. account for about 20 per cent of the cost of production of sugar.

The selling price of sugar is so high that it is neither conducive to increase the home consumption nor in a competitive position in the international market. The cost of production of sugar is also high because of inadequate utilization of by-products and the seasonal character of the industry. At present sugar is produced either by sulphitation or carbonation process. In both these processes sulphur is used which is imported at very high price, thus increasing the cost of production of sugar. As in sulphitation process the use of sulphur varies from 0.05 to 0.08 per cent while in carbonation process it varies from 0.02 to 0.035 per cent Thus it is necessary to increase the use of carbonation process for reducing the costof sugar.

Another problem which is upsetting the exports production of sugar in the country is lack of integrated policy. There is an urgent need to evolve an integrated policy for regulating all the sweetening agents viz, gur, khandsari and sugar. The wide tax disparity between the said sweetening agents affects the competitive capacity of sugar factories in the matter of procurement of cane supplies Efforts should be made to exclude totally the khandsari units and power crushers from reserved areas of the factories To start with a blanket ban could be imposed in the reserved areas of the sugar factories No new licence should be granted nor any change in the names of the licences should be permitted nor further expansion of the existing khandsari units/power crushers operating in the reserved areas be allowed. Maximum price for gur and khandsari should be fixed and imposed in the beginning of each crushing season to avoid competition for cane prices among these three industries. Besides, the working hours of khandsari units, their date of start and also the quantity of sugarcane to be crushed may be fixed before the commencement of the season. All this needs to be done to avoid diversion of cane to gur and khandsari industry.

Another problem facing the industry in our country is the relatively small and uneconomic size of sugar factories The approximate sugar output per factory in India is 15,000 tonnes as compared to 40,000 tonnes in Cuba, 50,000 tonnes in Australia, 60,000 tonnes in South Africa and

(*Contd. on Page* 23)

Credit Facilities For The Neglected Section

HAIDER ALI KHAN

A LARGE SECTION of India's rural society remained neglected by the credit creating ıgencies before independence. This ;tate of affairs still continues in arge measure, resulting in the ɔerpetuation of rich and poor ;lasses with a widening gap between hem. The economy of the neglected ıegment of humanity, scattered and ınorganised as it always is, did not ıttract the attention of the powers hat be in the pre-independence lays and even for decades after. It s only since recently that the Go'ernment's approach has changed. The process began with the historic leoision in July 1969 to nationalise 4 Scheduled Commercial Banks vith a clear policy of preferential ıttention to the hitherto neglected ections of the society,

The neglected sector consists of ıgriculturists including small and narginal farmers, handcart pullers, ɔperators of horse carts and bullock ırts, rickshaw pullers, pan Bidivallas, tailors, barbers, dhobis, and number of other such self-emɔloyed persons whose credit requireıents had never been the concern of he Government.

The recent policy directives rom the Central Government has ɔut this class on a new footing. hey now form, for the purposes f bank advances, "priority sector". his new change in the situation is a 'elcome change and it will cause etter results on the social economy. he neglected sector will now conıbute in their own humble ways, ıeir best towards the national ampaign for high production and ɜmunerative employment of unkilled and semi-skilled labour.

Besides receiving considerate eatment from the banking intutions, the neglected sector njoy a relatively lower rate of iterest at 4 per cent. To achieve ıe objective of helping the deprived ɜctions the banks have drawn up schemes to extend credit to small borrowers in sectors like agriculture, small scale industry, road transport retail and small business. The Department of Revenue and Banking of the Central Government has recenty asked the public sector banks to take urgent measures to raise the proportions of advances to the neglected sectors to 33-1/3 per cent of the aggregate outstanding credit of the banks by the end of the Fifth Five Year Plan in the year 1978-79. It is a matter of satisfaction that the Union Bank of India has already achieved this target and has financed 36.47 per cent of its advances to this neglected sector for the year ending December 1975 But the percentage of bank advances to these people has been declining: It was in 1973, 37.16 as against 37.11 and 36.47 in 1974 and 1975 respectively. The bank advances to the neglected sector had gone up in the past The incrase was specially marked during the second half of 1974. The Bank advances stood at nearly 28 per cent in December 1975 as against 26 per cent in June 1975 A year earlier the advances to these sectors had accounted for 25.2 per cent. The increase after nationalisation has been rather spectacular with the advances to the neglected sectors when we compare it with the 14.9 per cent as it stood in June 1969. The amount outstanding against neglecled sectors in December last year was Rs 2321 crores as against Rs 1998 crores in December 1974 and a mere Rs 441 crores in June 1969. The total outstanding advances by the Public Sector banks in December 1975 accounted for 8329 crores as against Rs. 7676 crores in June last year and Rs. 30.17 crores at the time of nationalisation. The number of borrowal accounts pertaining to agriculture, small scale industries and road and water transport, retail trade and small business professional and self-employed persons and education stood at 41 lakhs in December last year as against 33 lakhs, six months earlier marking an increase of 8 lakhs. The number of borrowal accounts at the time of nationalisation was only 2.60 lakhs.

The existing financing measures to this sector are still not adequate and are deficient in many respect. The consumption loan specially in the off season is not allowed as per requirement Hence the advances made for actual production are suspected to have been diverted to unproductive consumption There seems to be a case, therefore, for consumption loans to be released more liberally in order to attain the real results out of this Sector. A few suggestions are offered to make for effective performance of the neglected sector:

1 In case of failures in the first attempt under this sector, there should be provision for refinance under certain conditions This seems necessary so that the failing units and the persons may get, under proper security, one more chance to stand on their own feet.
2. The marketing of goods and services under this sector may be entrusted to an autonomous organisation formed for the purpose, under the overall supervision of the Central or State Governments.
3 Small farmers are required to produce non-encumbernce certificate while borrowing from banks at a cost of about Rs. 60/-. This is a costly and inconvenient procedure. A less expensive and crediable declaration may be evolved
4. The cattle advances are covered by General Insurance and the charge for these are @5.5. per cent. This is quite expensive. Moreover, it does not give the cattle complete insurance coverage The facility of cattle loan is at present restricted to the land holders only. To make this loan more beneficial, it seems desirable that it should be open to the landless too.

It may be hoped that if the neglected sector is given more liberal backings and is allowed to play its role more actively, it will bring radical changes in the society and will promote the economic wellbeing of thousands of families who are on the subsistance level. ☐

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World Bank Aid For Kerala

R. HALI

TRULY, IT IS the ever green tree crops that make Kerala the "Green paradise of India" in the eyes of tourists More than 70 per cent of cultivated area in the state is covered by tree crops like the coconut, cashew, pepper and rubber. In short, cash crops form the backbone of farming economy of the state Several lakhs of small farmers earn their income by nursing these crops and processing their products daily.

New farming innovations like mixed farming, multitiered cropping systems, etc if implemented in a scientific manner coupled with rejuvenation of the existing tree crops in the gardens and homesteads, will pave way the for new prosperity among the farmers in the State. Small, marginal and sub-marginal farmers, who constitute a sizable portion among the economically weaker sections of the community welcome the massive World Bank aided 'Kerala Agriculture Development Scheme' popularly known as the 'tree crop development programme.' Six of the eleven districts of the state are covered by this biggest ever tree crop development scheme; 74,000 farming families are expected to participate in this project and thereby derive benefits from the schemes which call for a long term investment of Rs. 62.12 crore of which Rs. 27 crore will be the contribution of the World Bank.

Shri Hali is Principal Information Officer, Farm Information Bureau, Trivandrum, Kerala.

India imports more than one lakh tonnes of raw cashewnut every year. This has to be reduced. The World Bank aided Kerala agricultural development programme will help boost up the internal production of raw cashew.

A good cashew tree. Cashew comes up well even in the most neglected soil.

A pepper nursery producing quality seedlings

Coconut development has been given a place of great prominence in the programme. Fifteen thousand hectares will be brought under coconut cultivation at the rate of 5,000 hectares each in the districts of Cannanore, calicut and Malappuram.

30,000 hectares of existing coconut gardens will be rehabilitated in the districts of Trivandrum, Malappuram, Calicut and Cannanore. 25 per cent of the area under coconut covered by the programme will be provided with irrigation facilities. Massive assistance will be provided for cultivators to grow cocoa, tree spices and fodder as inter crops in the coconut gardens, brought under the purview of the scheme.

Crumb rubber factories are a must to help the small growers. 18 Crumb rubber factories will be established under the programme.

Pepper, the king of spi[...] gets a royal treatment for [...] development. In the prem[...] pepper producing districts [...] India, namely Idukki, Ko[...]yam and Cannanore ten tho[...]sand hectares of pepper gard[...] will be rejuvenated by intens[...] replanting, interplanting, [...]nuring and plant protect[...] operations.

Cashew production too will [...] given a big boost so as to en[...]nce the internal production [...] reduce the import of raw cash[...] 2280 hectares in the governm[...] cashew plantations will [...] developed and 1480 hecta[...] will be brought under cash[...]

Above right : Kerala is well known fo[...] production of rubber. Here rubber is bei[...] extracted from a fully grown tree.

In the coconut gardens pepper and several other spices will be grown to boost up farmer's income.

cultivation afresh in the reserve forests.

50,000 rubber growers will be benefitted in a big way by extending facilities to start 10 huge crumb rubber processing factories in the co-operative sector.

Special Animal Husbandry and Dairy Development facilities are to be extended to farmers who take up fodder growing and cattle rearing in the areas covered by coconut rehabilitation programme.

Gigantic efforts are required to educate and motivate and educate thousands of small farmers on the technological content of the programme. To provide input support to the programme, a full-fledged seed garden will be established from where the requirement of coconut seedlings, cocoa seedlings, spice seedlings, etc will be produced on a massive scale

The programme is expected to produce, when fully implemented, additional 200 million coconuts, 6000 tonnes of pepper, 2000 tonnes of cocoa, 6000 tonnes of raw cashew, 15,000 tonnes of milk and 40,000 tonnes of other food materials. The ten crumb rubber factories are expected to help 50,000 small rubber holders to convert 25,000 tonnes of low quality of rubber into superior crumb rubber. □

15000 hectares will be brought under coconut cultivation and 30000 hectares of coconut gardens will be rejuvenated under the programme.

Railway Budget 1977-78

COMMUTERS SPARED

THE RAILWAY BUDGET for 1977-78 presented to Parliament on 28-3-77 has not proposed any change in the Passenger fares or freight rates. It envisages a surplus of Rs. 264.5 million. All the railway employees who were either suspended or dismissed as a sequel to their participation in the railway strike in May 1974 are to be reinstated unconditionally.

Presenting the budget the Railway Minister said that in the ensuing year passenger traffic was expected to increase by 6 per cent and the originating revenue earning freight traffic is being targetted at 217 million tonnes, 11 million tonnes more than anticipated in the current year.

With these traffic prospects gross traffic receipts at existing passenger fares and freight rates have been estimated at Rs. 20914.4 million Passenger earnings account for Rs. 6070 million, other coaching earnings Rs 923.1 million, goods earnings Rs 13627.6 million and sundry earnings Rs 543.7 million An amount of Rs 250 million out of these earnings may not, however, be realised during the year.

The estimate of working expenses for the year, has been placed at Rs 16357.5 million. These expenses take into account removal of anomalies arising out of recommendations of the Third Pay Commission and upgradation of certain non-gazetted posts for improving their career prospects Increased provision has also been made for maintenance of track, rolling stock and other equipment for keeping them in good fettle and traffic worthy. Provision has also been made for additional fuel requirement to meet the projected higher level of traffic

Besides, appropriation to the Depreciation Reserve Fund has been raised to Rs 1400 million in keeping with the proposals accepted by the Railway Convention Committee in their deliberations. The contribution to Pension Fund has also been enhanced to Rs 400 million to meet the anticipated higher withdrawals. Expenditure on Open Line Works chargeable to Revenue and miscellaneous tractions is expected to be Rs 236.7 million. Dividend liability to General Revenues for 1977-78, based on arrangements approved by Parliament for 1976-77, is estimated at at Rs 2255.6 million. Inclusive of these items of expenditure the estimated surplus for 1977-78 is of the order of Rs 264 5 million

Phenomenal Increase in Passenger Traffic

The Minister said that increase in passenger traffic during the current year has been phenomenal. During April to December 1976, the originating suburban passengers recorded an increase of more than 10 per cent and non-suburban passengers of 24 per cent as compared to the corresponding period in the last year. The increase, was due to the combined effect of check on ticketless travel, alround improvement in passenger train operation, introduction of new trains and expansion of the run of some of the existing trains

Taking all these factors into account, the Minister said, that the Gross Traffic Receipts for 1976-77, were now estimated at Rs 19875.5 million—an increase of about Rs 320 million over the Budget.

Saving in Working Expenses

In spite of increase in traffic over the budgeted level, the Revised Estimates of the Working Expenses record a net saving of about Rs 30 million over the Budget as a result of better efficiency and tighter expenditure control. He said, actual savings could have been more but for inescapable additional expenditure to meet the increased requirement of fuel, lubricants and other materials necessitated by higher traffic as compared to the Budget.

The Minister said that the Railways were now expected to close the current financial year with a net surplus of Rs 356.7 million as against the modest surplus of Rs 89.8 million anticipated in the Budget.

Excellent Performance

Taking stock of the performance of the Railways in 1976-77, the Minister informed the House that in almost all spheres of railway working, the Railways excelled the best norms that had ever been achieved before. The menace of unauthorised travel agents and anti-social elements indulging in malpractices in seat reservations has been largely eliminated. Booking and reservation counters at large stations have been increased. Over-crowding in trains has been reduced substantially not only as a result of introduction of additional trains, but also by a continuous watch on ticketless travel.

Cleanliness in trains and railway stations has improved. There has been marked improvement in the catering services. The trains maintaining punctuality at present average over 90 per cent as compared to 65 per cent prior to 1975.

The Minister said that a number of super-fast long distance mail and express trains to connect important State capitals and cities, reducing their journey time and providing a more comfortable travel had been introduced during the year. Some of the trains were the Tamil Nadu Express, the Karnatak-Kerala Express, the Jammu Tawi-Bombay Express and Gomati Express. Another important development during 1976-77 was the resumption of Indo-Pak rail traffic with effect from July 22, 1976

Complimenting the staff for the high calibre of performance and unfailing commitmen to the tasks assigned to them, the Minister informed the House of the various steps that have been taken for labour participation in management. He said that he would strive to introduce a new element of dynamism in management-labour relationship.

The Minister said, the Railways owe a sizable debt to the General Revenues on account of temporary loans obtained for Development Fund and Revenues Reserve Fund expenditure. The Budget for 1976-77 envisaged the Railways' indebtedness as on March 31, 1977 to be Rs 4915 million. According to the Revised Estimates, this figure is expected to be reduced to Rs 4619.9 million at the end of the current year. The indebtedness to General Revenues is expected to be of the order of Rs 4771.8 million, at the end of 1977-78. □

Simulator For Calcutta's U-Railway

RAMEN MAJUMDAR

A CERTAIN BABOO was travelling by a carriage from ·Kalikata to his home some ittle distance from the town The carriage crept forward with mournful slowness. The horse was one of the offsprings of pegasus described by Baboo Tekchand Thakore No sting of whip could induce it to change from a walk to a trot On the way, the Baboo met a neighbour of his, a Brahmin pundit, who too was going home. "O, Venerable Crown-Jewel. Pray come with me in my carriage," said the Baboo But the old man replied "Baboo, I have pressing tasks at home, I must get there quickly".

That was from Rajnarain Bose's 'Sekal O Ekal" ("Times Past and Present").

This vignette from the pen of Rajnarain is of Calcutta at the beginning of the past century But do we not, faced with the choice of taking the public transport or using our own trusted legs, often decide like the venerable Shiromani to walk rather than ride? "You have to be back home in time? Better walk" The reason. the town has grown, the population has multiplied, but its streets are as narrow as ever. Putting fast vehicles any more on the streets will only clog them further.

The only solution to unclog the streets is the underground railway. and the authorities are already on such a project.

Since the underground railways operate on electrical power, it is essential to know how much power the trains consume and what are the voltages required at different stations.

Besides, there are two problems to be considered for Calcutta First, its warm and humid weather Secondly, its limited power supply

Calcutta is known for its humid hot weather for a large part of the year. So, one may aptly ask : Will it not be more hot and humid underground? Will not the power consumed by the trains contribute to inconvenience of the travelling public?

It is well-known that when an electric current flows through a cable, wire or conductor, heat is generated due to the resistance of the element Also, if there is any mechanical movement against some friction, just as is offered by brakes, heat is produced again.

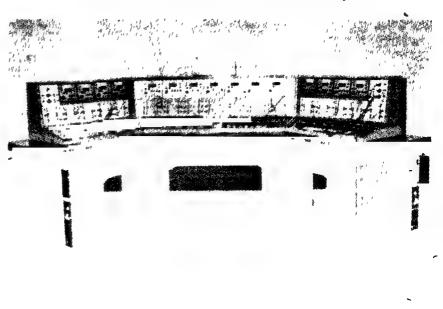
The underground railway will have a huge network of cables transmitting electric currents The major portion of the power consumed by a train will be pumped out in the vicinity of the platform during starting and braking For, when the train brakes while approaching a station and stopping at the station, all its stored kinetic energy dissipates at the braking resistors and the brake shoes as heat. Similarly, while starting, the train motors are connected to starting resistances which, in turn, dissipate heat in the vicinity of the station

Therefore, one very important aspect of the studies is to be directed towards determining the minimum consumption of power. This will entail minimum generation of heat causing less discomfort to the commuters and what more, less consumption of a rather dear resource, namely electricity. Also, the minimization of heat will cut down the sizes of the pumps and fans necessary for ventilation and airconditioning. This will further reduce the expenditure.

Again, conservation of power is very important for a city like Calcutta facing power-shortage. One way to plan for minimizing power consumption is to use a power system simulator. A simulator will help analyze what measures are to be taken to reduce the consumption of power.

For example, what should be the principle of preparing the time-table for running underground trains so that the consumption of power is minimum. Assuming, a train is planned to start from the Dum Dum and at a certain point of time It is possible to schedule another train to leave the other end, that is the Tollygunge end, at exactly the same instant. But the train may be delayed by some time, say half-a-minute or a minute This slight displacement of time will mean nothing to the travelling public, for they will not feel the difference at all But this can cut down the power demand of the train considerably, saving several thousand rupees a month. This further cut down in power will correspondingly reduce the generation of heat resulting in lesser discomfort to the commuters

The Control Systems Division of the Electrical Engineering Department of Jadavpur University has developed a simulator for the Calcutta Underground Railway Project. The total cost of the device is about Rs 1 lakh and the foreign exchange

The Power System Simulator for Calcutta's U-Railway

component does not exceed even Rs 1,000. A very sophisticated device, it will help the project engineers in assessing the power requirement in different sectors of the underground railway, in measuring the current on the line if there is any short circuit anywhere in the system, in locating faults and traffic conditions at a particular period and in determining the optimum train composition.

What is a simulator? It is an equipment which duplicates certain physical performances of a system in lower power level, where the system becomes manageable by a person or two, the different aspects of the actual system can be changed at will, and the performances can be gauged quantitatively. For instance, in this simulator, an actual substation has been replaced by a small electronic power supply so designed as to behave like a generator in a scaled down form. Here an actual 100 volts is scaled down to only 1 volt and an actual 1,000 amperes flowing in the substation cables is scaled down to one thousandth of an ampere, i.e. a milliampere Thus when we find in the simulator that at a particular time the voltage between two points is 6 5 volts or the current through a line is 5 milliampere, we say, after scaling these, that under these conditions the voltage is at 650 volts and the particular current is representing 5,000 amperes in the actual line. The simulator has been built entirely with electronic circuits. It has been designed in such a way that it will not only solve the problems of the underground railway in Calcutta but also of those in Delhi, Bombay and Madras. It can even be employed to solve the problems of surface railways, especially in suburban areas

Designed and built for the first time in India, the simulator has saved a considerable amount of foreign exchange and will also do so in future by eliminating the need of importing foreign know-how in this respect. □

Sugar

Contd. from Page 16

80,000 tonnes in Egypt. Not only this, about 55 per cent of the total sugar factories fall in the range of 10,000 to 15,000 tonnes, and 25 per cent in the range of 5000 to 10,000 tonnes Hence efforts have to be made for increasing the capacity of these factories either by their expansion or by merging smaller units into larger unit

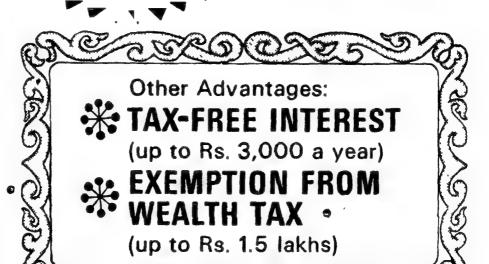
Most of the sugar factories of North India are financially weak The plant and machineries which were installed in the thirties (1930) in most cases have become obsolete and need immediate rehabilitation and modernisation The management have neither the finance, nor interested in replacing the old machineries because they are not certain of getting reasonable return on their capital investment. One of the reasons for this sorry state of affairs is shorter cane crushing season due to diversion of cane to less productive industries like gur and Khandsari. The Gundu Rao Committee has recommended the setting up revolving funds for the rehabilitation of uneconomic units. The main cause of the bad plight of the sugar factories is that they are generally starved of raw materials The revolving fund will no doubt help to some extent. However, rehabilitation, modernisation and expansion of these units is of greatest urgency and importance. This will have to be done simultaneously with the intensive development of sugarcane.

Another factor which is upsetting the sugar industry in the North, a factor that is perhaps common in many fields of activities is the lack of co-ordination between research and development while the research worker find himself helpless to translate his ideas into field practice, the development wing complains of the lack of appreciation of practical difficulties that makes the research findings of little value. It appears that the solution even to this problem lies in bringing the industry into picture by its participation as an active coordinator with an interest and stake and a valuator of research findings □

Annual Plan 1977-78 of States and Union Territories

	States	Fourth Plan Act. Expenditure	Fifth Plan Approved Outlay	1976-77 Approved Outlay	1977-79 Approved Outlay	1977-79 Approved Outlay
1	Andhra Pradesh	425 51	1333 58	267 85	674 12	365 75
2.	Assam	198 40	473 84	75 25	295 19	115.97
3	Bihar	479.21	1296 06	255 99	691 28	299 74
4	Gujarat	545 02	1166 62	218 50	570 65	280 58
5	Haryana	358 26	601 34	129 53	297.82	148 40
6	Himachal Pradesh	113 43	238 95	37 36	137 23	56.35
7	Jammu & Kasmir	162 22	362 64	79 99	176 75	89.68
8	Karnataka	374 14	997.67	215 93	495 00	230 50
9	Kerala	333.31	568.96	114 00	268 27	135.52
10	Madhya Pradesh	475 51	1379 71	275 50	700.00	344 77
11	Maharashtra	1004 51	2347.61	467.20	1247 97	646.80
12	Manipur	31 15	92 86	17 53	50 15	23.19
13	Meghalaya	36 24	89.53	20.22	40 22	24 46
14.	Nagaland	38 52	83 63	17.70	36 09	19.27
15	Orissa	249 34	585 02	131.77	292 19	150 00
16	Punjab	428 47	1013 49	222 00	500 00	257.50
17	Rajasthan	308 81	709 24	144 07	324 23	168 00
			(1976-79)			
18	Sikkim	—	39 64	12 20	27 44	12.47
19	Tamil Nadu	551 69*	1122.32	217.20	595 18	260 12
20.	Tripura	34 66	69 68	15 67	32 65	15 78
21.	Uttar Pradesh	1162.58	2445 86	526 00	1145 88	648.25
22	West Bengal	363 55	1246.83	233 00	650 00	310 92
	*Ercludes Rs. 19 crores on power as outside Plan.					
1	Andaman & Nicobar Islands	14 70	33.72	6 75	18.13	8 21
2.	Arunachal Pradesh	21.12	30 30	9,70	39 40	13 63
3	Chandigrah	17 37	39 76	7 15	22 07	11 04
4	Dadra & Nagar Haveli	2 33	9.41	1.30	6.29	2 04
5.	Delhi	155.10	316 01	74 80	171 30	90.10
6	Goa, Daman & Diu	41 93	85 00	14 64	45 64	21.06
7	Lakshdweep	1.90	6 23	1,30	3 39	1 67
8.	Mizoram	9 30	46.59	8.67	24.07	11 07
9	Pondicherry	14 37	34 04	6.97	17.98	8 43
	Total ·	278 12	634,06	131.28	347 87	167 25
	Grand Total of States & Union Territories	7952.70	18899 14	3825-74	9596.18	4771 27

GRASS ROOTS IN THE CITY

V. K. DETHE

NEARLY 600,000 people have no roof over their head and sleep on the pavements of Calcutta. The dreary chawls of Bombay and Ahmedabad are eyesores, but hordes of people live in them. Slums in other parts of the country are no better. Built on smelly, polluted drains or vacant government land, they are overcrowded and insanitary. Most slums are virtually unlivable, by conventional standards, but peasants continue to forsake their villages and swarm into the cities.

What motivates the peasant to migrate to the city? Many are caught between the crunch of over-population and diminishing land holdings and flee to the city in search of employment. Others are victims of the Green Revolution, their simple skills no longer needed in the village. Drought and floods force others to quit All come to the city in search of the great urban dream—a better life, if not for themselves, for their children

For Pandu Ram Bansur the quest started three years ago when crops in his village suffered because of insufficient rains They stuck it out for another year but it was no good He had to quit the village, leaving the land to his younger brother Finding his way to Delhi, he moved in with a 'brother' who had migrated earlier from the village Pandu Ram did odd jobs till he was able to secure employment with a confectioner in a South Delhi colony He shifted to a nearby slum and built his own "jhuggi' shack from scrap—wood and thatched mats. He had put down his first roots in urban soil He wrote to his pregnant wife, Shobhai, to join him.

Shobhai still recalls with a shudder her first glimpse of the capital She had spent a sleepless night in the packed compartment Her two children, a boy and a girl, had cried throughout the night. Her husband met her at the station though it meant losing a day's salary. The mini bus dropped them a couple of kilometres from the jhuggi colony and the family had to trudge 'home'. They had a meal of dry chappatis and pickle and went to sleep.

Shobhai awoke next morning to see an indescribable huddle of jhuggis. She felt utterly alone and her loneliness increased when her husband left early for work. Luckily, a kindly middle-aged woman in a neighbouring jhuggi befriended her and she was later responsibe for Shobhai getting a part-time job as a maid The elder child, a son, started going to school while the younger daughter accompanied Shobhai to work Shobhai had to leave the job when her pregnancy advanced.

At this stage she really started missing her parents and relatives She longed for the warmth and security she had left behind. Her husband tried to divert her mind by taking her to the movies, but it did not help She did, however, develop a taste for films and hardly missed an opportunity of seeing one. But the unfamiliar loneliness persisted The first Diwali festival was spent alone with the children as her husband was working overtime

Shobhai's adjustment to city life was slow Her first tentative attempts at make-up, in imitation of the younger neighbouring wives, left her in giggles. She however took the plunge and now wears one of the cheap garish lipsticks sold outside railway stations by pedlars. She has also started wearing the cheap city trinkets in preference to the heavy silver jewellery which she wore in the village. Her wardrobe, all of which can be contained in one small trunk, now includes two synthetic fabric saris, one of which was gifted to her by the mistress of the house where she once worked as a maid. These are only worn on special occasions.

Her third child, a son, was born in a hospital. For Shobhai it was a unique experience in that her two other children had been delivered in the village with the help of the local 'dais'. She had at first refused to have the child at hospital, preferring to go back to the village and be with her mother. But there was no money for the train fare. The hospital terrified her. And the brusque manners of the younger doctors only added to her discomfort. The child birth, however, was without complications.

Though she had vaguely heard of family planning, her first brush with it came while in hospital. A social worker visited the maternity ward to persuade women to go in for sterilisation. Shobhai did not need much convincing when the advantages were pointed out In any case, she feels, the eligible women could not really have evaded taking the step.

One of the major crises to affect the Bansur family came in February 1976 when the entire slum colony where they were living was given orders to shift to a new location on the city's outskirts. They had become part of the resettlement scheme that moved 700,000 people out of the core of Delhi.

The shift was not without its inconveniences The family stayed in the open for a couple of days. The first night it poured and their clothes and bedding were soaked. Today, a year later, they are staying in a makeshift structure which has kept out wind and rain so far

Adjustments to the demands of living on the urban periphery continue. The elder son's education was interrupted for some time but he soon got admission in a newly-started municipal school. But money continues to be a problem and this has become more acute with the shifting Nearly Rs 40/- from a total salary of Rs 150/- is spent by Bansur in commuting by bus. Earlier, his expenses under this head were nil. The family finances have taken another dip with Shobhai's brother coming to live with them. The brother works as a casual labourer earning about Rs 7/- a day but this is not a regular income He is sick most of the time and misses work. Hospitalisation, particularly the medicines, cost money which the family does not have They pin their hopes on their getting an unskilled job at an industrial estate coming up five kilometres away.

On her part, Shobhai hopes to learn a craft at a nearby welfare centre being run by a voluntary agency Another idea is to run a little store, selling cigarettes, matches and the

Contd. on Page 3:

Mr Vijay Kumar Dethe is a free-lance journalist.

Jewellery Exports—

Wide Scope in Gulf Countries

SUBHASH J. RELE

THE EXTREME satisfaction so often expressed by official sources over the steady increase in gem and jewellery exports over the years is justifiable From a not so impressive level of Rs. 100 million in 1965-66, gem and jewellery exports have risen to more than Rs 1047.2 million in 1975-76 i e a twelve-fold rise in just ten years This trend is being maintained during the current years; in the first five months the exports amounted to Rs 494 million against Rs. 436 million in the corresponding period of 1975-76. The trade has reasons to exude confidence about the future and it expects to double the exports to Rs. 2500 million annually in the next five years Some people in the trade feel that this target can even be exceeded if the Government comes forward to meet some of trade's demands

Not many in our country are aware of some of the distinguishing features of this industry. First, it is an entirely export-oriented industry As a spokesman of the industry disclosed the other day that the industry imports raw materials required by it from abroad since the domestic production of these items such as rough diamonds, precious and semi-precious stones, synthetic stones and raw pearls, etc. is very small But all the raw materials imported are re-exported after cutting polishing or processing or studding them in jewellery Secondly the industry provides employment to about 1,50,000 people. This is perhaps the largest labour force in this industry in the world.

Imbalance in Pattern

The industry is trying to enter the non-traditional markets to rectify the heavy dependence on traditional markets which claim nearly 90 per cent of the total Indian exports. A delegation sponsored by the Gem and Jewellery Export Promotion Council has found that there is vast scope for promoting exports of gems and jewellery to these countries Iran's offtake of diamonds is quite substantial; the quantities in demand range between very cheap 666 varieties valued at $ 50 per carat and $ 120 per carat. Single cuts are also in demand Indian-cut gems enjoy a very big market Kuwait is another potential market for gold jewellery But importers and exporters complain about cumbersome procedure at delays. The import duty on gems and jewellery is just 4 per cent The total production of jewellery being inadequate to meet the rising demand, there is bright scope for pushing our exports to this area The business men in Kuwait are willing to supply gold for conversion into jewellery and re-export. In Bahrain, gem-studded jewellery made of white gold is generally preferred while gold will have to be imported if this trade is to be developed

Dubai is another potential market for gold jewellery It is felt that export business worth millions of rupees can materialise if the procedure to import gold if simplified The delegation has suggested that Indian jewellery manufacturers should be supplied gold at international prices to enable them to manufacture and export jewellery. Besides, jewellery exporters should be allowed to import samples of foreign jewellery as also sockets, moulds, models, clasp and metal fittings. The suggestion that the manufacturers should be allowed to import necessary tools and machinery is also sensible The delegation stressed that the import duty on semi-precious stones and cultured pearls, which is quite high, should be removed If this recommendation is accepted it will enable the Indian products to compete wth Israel and Belgium, India's main competitors. Moreover, foreign buyers wanting to come to India to buy gems and jewellery should be given all possi ble assistance by the authoritie concerned.

More Diamonds

In the gem and jewellery export diamonds would continue to pla a vital role. The latest decision o the Diamond Trading Company Britain, to liberalise supplies o rough diamonds to India will giv a further fillip to exports The de cision is expected to increase th DTC's supply from 58 million dollar in 1976 to anything from 75 millio dollars to 100 million dollars nex year It is estimated that the DTC supply of this order will help to gene rate export of finished diamond worth Rs 1100 million to Rs. 135 million in 1977. The recent survey show that exports of upto Rs 200 million a year are attainable much earlier than envisaged

The finance constraint will prov to be the main stumbling block The industry has definitely a cas here The present sanctioned bank limit to the diamond processing industry is stated to be Rs 32 crores The increased DTC supply of rough diamonds will need an average utilisation of bank finance amounting to atleast Rs. 500 million The industry claims, and rightly so, that industry in Israel and Belgium gets adequate bank finance Diamond industry in Israel gets 300 million dollars of bank finance aganst its total exports of 800 million dollars, and industry in Belgium gets bank finance as large as 420 million dollars against its exports of 910 million dollars If the Government of India fails to assure bank finance of at least Rs 500 million to diamond industry, it would be a case of missed opportunity One hopes, in conformity with the recent trends in policy formulations, the Government will adopt a pragmatic approach to the industry's problems. □

Shri Rele is Editor, Industrial Times, Bombay

Yojana Quiz

1. Who Founded Agra and in which year?
2. Which railway station in India has the shortest name with only two letters.
3. The longest railway bridge in India is
   (*a*) Vivekananda Setu
   (*b*) Sone bridge
   (*c*) Yamuna bridge
4. First official air-mail flight was on
   (*a*) 1st October, 1854
   (*b*) 26th January, 1900
   (*c*) 18th February, 1911
5. The Longest dam in the world is
   (*a*) Hirakund (India)
   (*b*) Mica (Columbia)
   (*c*) Nurek (USSR)
6. Which river in India rises from the snout of the Chemayungdung glacier near the Tachbog Khabal Chhorten?
7. Himalayas cover about
   (*a*) 10020 sq km
   (*b*) 500,000 sq. km
   (*c*) 2,30,000 sq. km.
8. Which Lunar crater has been named after an Indian?
9. First 120 mw unit of Rs. 90 crore Santaldih thermal power station in West Bengal was commissioned on
   (*a*) 15 October, 1973
   (*b*) 15 August, 1948
   (*c*) 26 January, 1960
10. What is INS Garuda in Cochin?

Answers:

1. Sikandar Lodi in 1494
2. Ib railway station on the South-Eastern Railway between Jharsuguda and Brijarajnagar in Orissa
3. (*b*) Sone bridge. It is 10,052 ft. long and has 95 spans, each 100 ft. apart
4. (*c*) 1911, 18 February from Allahabad to Naini junction.
5. (*a*) Hirakud [illegible] miles
6. Brahmaputra river, the place is about 100 km South-east of Mansarovar
7. (*b*) 500,000 sq. km.
8. Bassel named after the Late Dr. Vikram Sarabhai at the Sydney meeting of the International Astronomical Union on the 17 March, 1974.
9. (*a*) 15 October, 1973
10. Indian Navy's Second Sea-King Anti-Submarine Air Squadron.

Quotation Box

He (Mr. Bhutto) should be seen, rather, as the fastest gun in what is still, politically, a frontier society—determined to hold on to power, frequently abusing it, but also using it to push and pummel his half-developed, half-primitive country into the modern world.

—The Economist.

*

By controlling a few stratagic points Capetown, Simonstown and Singapore—the British had turned the Indian Ocean into a 'British Lake, at the hayday of the empire.

—Admiral J. Cursetji
Chief of the Naval Staff.

*

It is really painful that while India's national image was raised by upholding the sanctity of the ballot box, the image of Pakistan has been turnished by obstructing the democratic process

—Nawabzada Nasrullah Khan
President PNA of Pakistan

*

We cannot neglect the great masses of our people who have not got the benefit of education.

—Dr. Pratap Chandra Chunder
Union Education Minister

*

Mr Nehru believed in Machiavelli. That was his ideal Mine is Gandhi and Lincoln

Morarji Desai

*

For the first time in Indian parliamentary politics, the alternatives of a functioning democracy must face each other across the Lok Sabha floor. One cannot tell what Chemistry will come but there is a chance , a heady and exhilarating chance, that the imperatives of government will now give Indian democracy one priceless boon...two coherent national parties and the opportunity, buoyed on the Janata wave of hatred towards despotism, to make freedom stick, and stick.

—The Guardian (London)

*

External aid is like a sulpha drug. We must know when to use it, when to stop it, and we should always have a B-Complex to neutralize its effects.

—V.K.R.V. Rao

*

Carter would seem, on this side of the Atlantic, to be an old-fashioned Gladstonian, with the idea that 'What is morally wrong can never be politically right..

—Anthony Howard,
Editor Britain's New Statesman

Women's Lib and the Underworld

A REPORT ON FEMALE CRIMINALITY IN INDIA

Over the past few years more women have taken to crime in most of the countries of the world, including India. Statistical data show that women's lib could not certainly be the cause for the increase in the number of women criminals in India. Could it be female subjugation?

M. BILMORIA RANI

A NEWS DESPATCH from London as reported in Indian Express dated February 24, 1977 says that "crime is increasing every year in London and more women are getting in on the act . For the first time, burglaries in 1976 exceeded the 100,000 mark in London with a growing number of women joining men in crime teams" The news despatch further says that in this 'Women's Lib of the Underworld', girls and women were acting as decoys or doing the breaking in for burglaries

Female criminality was also a subject of discussion in the Fifth Nations Congress held at Geneva from September 1-12, 1975 The Congress noticed that "While the proportion of women in the total criminal population still remains relatively small, crimes committed by them are rising faster than those by men". In the U S A the increase in the arrest rate among females from 1962 to 1972 was three times higher than among males In Japan the number of female offenders increased from 9.8 per cent in 1962 to 13 6 per cent in 1972 In the Federal Republic of Germany, the percentage of female offenders increased from 15.4 in 1963 to 17.1 in 1970. In Canada, the percentage of women offenders charged with indictable offences rose from 7 in 1960 to 14 in 1969 Norway recorded a sudden spurt in female criminality from 4 per cent in 1958 to 10 per cent of total crime at present New Zealand reported a dramatic increase in female crime rate after 1960 In these countries the increase in female juvenile delinquency has been sharper than the general female criminality In Poland, however, a steady decline was reported In that country the number of women prisoners fell from 25 9 per cent in 1951 to 11 4 per cent in 1972

In India also the situation is not bright As against 16,303 women arrested under Indian Penal Code in 1971, the number rose to 27,891 in 1972 But as pointed out by N K Sohoni in the Illustrated Weekly of India (August 25, 1974) one of the distressing features is the regional concentration of the female convicts Around 73 per cent of female convicts are from Andhra Pradesh, Maharashtra and Tamil Nadu As regards the juveniles the number of girls arrested under Indian Penal Code has gone up from 4,801 in 1968 to 7,228 in 1972 According to the statistical analysis of the Central Bureau of Correctional Services "educationally, 33 per cent of men convicts are literate while 12 per cent of women convicts are literate Among women convicts, almost 73 per cent are married, about 15 per cent are unmarried, 12 per cent are widows " Among women and girl convicts, the largest group of 40 per cent convicts are in the age bracket 21-30 years followed by 30-40 years which account for about 32 per cent The age group 16-21 years of female convicts constitute about 10 per cent of the total women convicts admitted to jails in India."

Types of Crimes

Women commit various types of crimes but no published data is available on the exact nature and type of crimes committed by them Ram Ahuja made an empirical study on women criminals and the pattern of crime among the women convicts and probationers in the State of Rajasthan in the year 1966 67 According to his analysis out of 49 female convicts 39 committed offences against person, 7 committed property offences, and the remaining committed minor offences.

A preliminary analysis of the data collected by this author from the two jails of women in Andhra Pradesh revealed a similar trend. Out of a total of 120 female convicts, 54 females committed offences against person, 23 committed property offences and 43 were involved in minor offences The data further showed that many women committed murders, thefts and took to prostitution, kidnapping etc , due to bad matrimonial or family relations or bad economic conditions

Of late different kinds of reports have been made on women criminality Saroja Natarajan reporting on the activities of women pickpockets in Bombay in *Eve's Weekly* June 21, 1975, says that the women pickpockets "are most active during peak hours when trains and buses are packed Their favourite period of activity is the beginning of the month from about first to the tenth" The women pickpockets concentrate on the women's compartments in trains and at bus stops Saroja reports a curious practice among the Mangarudis who belong to the category of criminal tribes. She says that a common custom among the women of this community is to commit an offence just before delivery and plead guilty so that when convicted the delivery expenses would be at Government's

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cost and they'd get better facilities free of cost Most of the women pickpockets in Bombay are trained by the Mangarudis Women take to pickpocketing both because of their bad economic condition and due to the influence of bad company and continue in the profession because of the obvious advantages. According to Saroja a few of the picknockets in Bombay are also kleptomaniacs She says one such maniac is a middleaged Sindhi lady The police have never been able to get the exact details as to her story, family background, etc She never tells the police anything But they are positive that she comes from an affluent family. Once in a way she is arrested for petty theft but she disappears again for some time. The last time she was arrested was in Delhi a few months back

R D Jah reports the case of a woman criminal 'Puth', who was a member of a group of dacoits in Chambal valley and was superior to other criminals both physically as well as mentally Puth was probably the most daring woman dacoit in the country Born to a prostitute she herself entered into her mother's profession Once she came into contact with a criminal dacoit, and married him she herself became an active dacoit. Of course, this is a rare case of its kind

In April 1976, a 30 years old woman entered into the district headquarters hospital at Eluru in Andhra Pradesh with a stethoscope and walked away with the gold necklace of a woman patient The woman pretended to be a doctor and asked the rich patient to lend the necklace to her for a while so that she could show it to her doctor husband downstairs The "doctor" left her stethoscope on her bed signifying her intention to return soon but did not do so This is a clear case of cheating. It is interesting to note that the ex-Maharani of Kolhapur has put on the garb of 'mataji' and cheated a number of devotees who came to her for blessings (*Andhra Jyoti*, Mar 29, '76).

Sometimes crimes are also committed owing to sheer belief in the efficacy of certain crude magico-religious rituals and sacrifices On November 22, 1975 in Pune one lady sacrificed the lives of a number of virgin girls at the altar of goddess Munja with the soul objective of receiving the blessings of the goddess for her own physical and spiritual welfare. Of course, such incidents are usually reported from tribal and semitribal areas, and the causes generally lie in the tradition and culture which are respected by the groups

Women also indulge in different types of criminal and antisocial activities with a view to improving the economic conditions of their families Sometimes they think that involvement in such activities is not bad and in fact, in some cases the men also encourage the women According to one report women of the fishing folk take recourse to gambling during their leisure time when the men are away on the sea to catch fish. This way they earn five rupees a day out of which they spend one or two rupees towards the family and the remaining amount is saved for their individual recreation or for gambling in future. This habit has led to a number of intra-family and inter-family conflicts in the fishing community The impact of this is seen very much on the children as well

Women also work as accomplices in different criminal activities It is observed that many a time women take up the job of illicit distillation and selling of liquor at the instance of or as a partner of her husband or other relatives Many of the brothel houses are managed by the men and women together Women as well as men act as pimps or procurers of girls Brothel runners keep their girls for training in the profession It is reported that traffickers in girls have set up a chain of centres all over the country. These centres obtain girls through kidnappers and other sources and distribute them to brothels throughout the country A news item from Meerut says that "while they scan, the hill areas of U P and the tribal areas of M.P , Bihar and Rajasthan, their contacts operate in the south which is said to have become the main source of supply ever since the procurement of girls from Nepal became difficult" Similar practices are reported in the southern states as well These days clandestine prostitution is becoming rampant While some girls take to prostitution for economic reasons, some others fall victims to the procurers for various other reasons The ambition to become cinema stars drives many young girls away from homes into the lap of the procurers. Some working women with a view to maintain 'higher' standard of life act as call girls too.

There are cases where women kill their husbands or paramours out of revenge. B.J Karkaria writes that a woman called Manjura, aged 30, 'together with her lover allegedly killed her husband with a scythe and sickle and threw his body in a well The husband was drunkard, the lover, Kamath, was "fair and of high caste" Poisoning is the usual method of killing used by women Niranjan Patel writes that "very seldom does a woman kill in a moment of uncontrollable emotional heat or frenzy. once a thought of murder enters a woman's mind it is impossible for her to get rid of it It becomes a merciless monomania which she has to translate into actuality". This statement, however, requires a careful empirical testing

Unfavourable Social Conditions

This cursory survey suggests the need for a thorough improvement in the social and economic conditions of the women Today in most of the countries social conditions are not favourable or congenial for the growth of the personality of women Various legislative and executive measures need to be taken to improve the lot of women Improvement in the status of the women would remove many of the undesirable causes and consequences in the area of human or social relations. It is significant to note that some feel that the spurt in women liberation would indirectly encourage women criminality It was pointed out in the Fifth Nations Congress on the Prevention of Crime and the Treatment of Offenders that "the increasing involvement of women in various walks of life and the decreasing disparity between the sexes in terms of socially defined roles were recognised as factors correlated to the increase in female criminality in most of the countries" If it is so in the developed countries, it should be our endeavour to look into the problem more carefully and find out the real causes behind the increasing criminal behaviour. It will be erroneous to think that mere increase in per capita income would automatically set the social relations or make them better. We should of course not overlook the fact that Poland showed decline in the incidence of female criminality despite the fact that her woman too is very much free Probably the difference lies in the very nature of the political, economic and social systems of the developed countries As the data show, so far as India is concerned female liberty could not certainly be the cause for female criminality. Here, on the other hand, female subjugation is the cause for female criminality □

SURPLUS BUDGET FOR MAHARASHTRA

AVINASH GODBOLE

Bombay Correspondent

THE 'NEW STATE budget for the year 1977-78 is a tax-free budget, though modifications in the rates of excise duty especially on liquor and beer are expected to yield about Rs. 293.4 million as additional revenue. The estimate envisages a surplus of Rs. 931.1 million on revenue account and a deficit of Rs. 884.9 million on capital account, leaving an overall surplus of Rs. 46.2 million. The estimates provide a number of reliefs which involve a financial burden of Rs. 67.2 million and taking into account the unbudgeted plan outlay of Rs. 143.8 million, the overall surplus is expected to be converted into an overall deficit of Rs 97.6 million.

Some of the reliefs provided in the budget pertain to revision of rate of sales tax in respect of certain commodities and increasing the exemption limit for the purpose of sales tax in respect of small shopkeepers and others, from Rs. 30,000 to Rs. 50,000. With a view to give relief to the weaker sections of the society, the sales tax on kerosene is completely being removed.

Small farmers have been given relief in the form of exemption from the land revenue and cess which they have to pay to Gram Panchayats, and local authorities. According to the proposal, farmers paying Rs. 5 or less as land revenue, will be entitled for this benefit from Aug. 1, 1977. This will help about 20 lakh land holders i.e. about 40 per cent of the total number.

In order to offset the loss in revenue because of the various concessions, the rates of excise duty on different varieties of alcohol have been modified to the extent of 200 to 300 per cent. For example, excise duty on pure alcohol has been raised from Rs. 4.20 to Rs. 10·30 a litre. This alone will bring in Rs. 215.4 million. Similar modifications have been made in the rates of excise duty on country liquor and beer and with resultant increase in the sales tax because of these modifications, the State finances will be augmented by Rs. 293.4 millioo.

In the Fourth year of the 5th Plan, an outlay of Rs. 6500.7 million has been proposed. The govt. hopes that if the rain gods favour the State, it will be possible to end the Fifth Plan with a total outlay of Rs 27,000 million.

There has been a shift in the structure of industries in Maharashtra during the past 15 years. The importance of textile industry is slowly becoming less and less while the food industries sector is gaining. Chemicals and chemical products, basic metals and alloys, machinery and equipment and electrical equipment are also gaining importance in the industrial field in Maharashtra.

BUDGET ESTIMATE AT A GLANCE

(In million rupees) *Revenue Account*	*Estimates*
Receipts	13148.4
Expenditure	12217.3
Balance (+)	(+)931.1
Capital Account	
Receipts	5066.6
Expenditure	5951.5
Deficit (—)	(—) 884.9
Total	
Receipts	18215.00
Expenditure	18168.80
Balance (+)	(+)46.20

Economic Review

About the economic situation, the State income during 1976-77 was more by 6 per cent as compared to that in 1974-75 at constant prices. At the current prices, it was 74,750 million and Rs. 69,730 million in 1975-76 and 1974-75 respectively. There has been increase in per capita income also from Rs. 1271/- in 1974-75 and Rs. 1330 in 1975-76. The situation on the agricultural front was also satisfactory. The index of agricultural production in the year 1975-76 was more than 9 per cent as compared with that in the previous year. Employment in the organised sector especially in the public sector increased by 17.5 lakh (6 per cent)

Under the employment guarantee scheme, in the first seven months of 1976, employment to the extent of Rs. 757 lakh man-days was provided at a cost of Rs. 233 million as compared with 639 lakh man days and Rs. 152 million in the corresponding period of 1975-76. There has been a similar increase in the industrial Production by about 10 per cent in the first ten months of 1976 which was only 2 per cent in the previous year. According to the information available for 1974-75, Maharashtra is much ahead in the manufacturing sector. In the matter of productive capital and employment, Maharashtra's share is about 20 per cent and in production and value-added it is 25 per cent. The per capita production and value-added in the State was Rs. 1214 and Rs. 294 in 1974-75 as against Rs. 445 and Rs. 104 at the all India level.

Whither Our Universities

Science, Universities and Research in India—*An introductory essay by Dr. M. H. Gopal; Geetha Book House, Mysore,* 1976; **Pages** 72; Rs. 20

CARDINAL NEWMAN appears to have been very much in the mind of the author when he delivered his keynote address to the doctoral students at the University of Mysore in November 1972. The 'encircling gloom' apparently got closer to him with a further self-chosen probe that he had attempted into the possible criteria for ranking universities and assessing the quality of the Faculty research. A distinguished social scientist and a well-known authority on public finance, the author's prayer to the 'kindly light' to lead him on is not merely a familiar quote to ornament the book but also a desparate if sincere bid to focus attention on the prevailing state of affairs of most of our universities, numbering 90 at present.

For a developing country such as India, the proliferation of universities is an unmixed evil. Pressures of the teeming school-leavers, unemployment and the permeation of the baleful influences of the outer society including those of politicians, have transformed our universities into veritable caricatures of their counterparts in the U.S.A. and United Kingdom, whose ideals the author energetically upholds with a lingering nostalgia. It is not surprising, therefore, that he finds conditions at home quite uncongenial to the growth of true scholarship and not altogether satisfying any or all criteria of ranking them in terms of his own conception. These are six in all viz their overall contribution to knowledge, faculty, reputation, continuing the effort, the availability of research opportunities, calibre of students and finally, the overall academic climate-intellectual, moral and social. His treatment is replete with many quotable quotes here.

The author promises a fuller study before long wherein he hopes to deal with the various aspects covered rather briefly in this introductory essay. The value of the present attempt, however, lies in its compact portrayal of a fast degenerating institutional set-up that has hardly any chance of becoming an *academic community* for the reason that "its constituents viz., faculty, students and administration, do not collectively and cooperatively stand by the

Books

declared goals, values, standards and methods." The book has the merit of highlighting the findings of several committee reports and impartial opinions of educationaists, that are, however, seldom read or quoted in public. The author desires to see knowledge grown within the universities and not as he puts it, through the sheer process of "collecting scholars as in regard to the Jawaharlal Nehru University." The analysis of this *locale of scholarship and research* is pertinent in a situation where spurious tendencies have become very strong.

In what is patently a devastating piece of writing which is both readable and informative, the author might have also prescribed the remedies instead of limiting himself to a diagnositic appraisal. One wonders whether the transition from empirica sociology towards a broad humanism is both an intellectual predicament of ageing scholars and an inevitability, or may be, that this is merely the outcome of a subjective sense of impuissance that overcomes any scholar with too broad a perspective that is not unfortunately shared by his junior contemporaries. Viewed either way, this slim book makes its reading quite rewarding to students of current affairs

—**B. N. Nair**

Financial Systems

Financial Structure and Economic Development—(*with special reference to India by ES. Srinivasan; Sterling Publishers Pvt. Ltd. New Delhi; Price Rs.* 40; *Pages* 170.

THE PURSUIT OF economic development at least in its theoretical aspects has fescinated many an Economist. Few however have turned their attention to an enquiry into the nature of relations obtaining between economic or real resource development and financial development. On the face of it, it may look rather naive to assume that one could be materially different from the other particularly as the common notion regarding financial development or development of financial assests is that it is merely the other side of the coin of the economic development. The relationship, however, is more complex than casual and could be remote and less direct under emergent economic situations than warranted by theoretical conditions as suggested by the present study.

In this study, which is connected with the analysis of the financial structure of a developing economy, the author sets out three basic questions: Are there structural changes as quantitative (growth) and qualitative (diversification) in the financial system in the context of economic development ? If there are charges, how are the diffeient aspects such as financial assets, institutions and markets affected by such structural changes and how best can these be analysed and explained? In an attempt to answer these questions a theoritical framework is developed to explain the relationship between development of real factors as income population and technology with the growth of financial assets, institutions and markets. The several hypotheses that the study seeks to test relate to significance of the changes in the financial systems in relation to growth of national income, the emergence of the government sector as the overall deficit sector and one which is most dynamic increase in domestic borrowowings with consequential establishment of special types of financial assets and institutions and flexibility of money and capital markets with growth.

For the analytical work, the study draws heavily from the flow of funds accounts of the Reserve Bank of India (RBI) and the model developed by Prof. R. W. Goldsmith in his book "Financial Structure and

Development", Yale, 1969. The financial transactions restricted to the organised sector covering the period from 1951-52 to 1965-66, are presented in terms of a six sector input table, into which the RBI data have been rearranged to yield important financial ratios asset-wise, sectorwise and for the economy as a whole. The major findings of the study are brought together in the last chapter. To revert to the initial basic questions, the empirical evidence presented here suggests important structural changes both in quantitative and qualitative aspects. The growth and structural changes are seen to be significant in the household and government sectors as also in the banking sector. The financial assets (loans and advances) have increased in relation to national income and this is also clearly brought out by the Financial Inter-relation Ratio (FIR) which shows relation between value of financial assets to the value of all real assets. While both the supply and demand for resources have increased over the period of study, the demand pattern is seen to be more variable than the supply pattern, suggesting increased flexibility of financial markets Yet another conclusion and one with policy significance is that while domestic borrowings and inflation increased over the years self-finance and taxation showed a decline and foreign finance remained either negative or stagnant. These findings are not linked with economic theory. However, an explanation is offered tentatively in terms of economies of scale. For instance, it is observed that the initial efforts of the government to expand the domestic monetised markets through making a larger part of the economy susceptible to money-price system and other measures helped financial specialisation and enabled the financial systems to reap internal and external economies.

Admittedly the analysis suffers from certain limitations such as those arising from the original estimates of the RBI, used in the study, the restrictive aggregation of data in the input-output table which excluded certain 'sources' that could not be distinctively allocated to any sector in particular etc. The savings data drawn from different sources like RBI and the CSO estimates have also introduced an element of incomparability. The usage of a familiar concept like the capital-output ratio differs from the conventional one, alerting the reader to use the statistical measures with certain caution. Nothwithstanding these, Dr. Srinivasan has undertaken a painstaking study which uncovers many areas in the intricate web of financial operations not always clear to the non-finance readers. One would wish that the second period 65-66 to 71-72 which witnessed crucial changes in the structure and growth of the financial systems especially with nationalisation of the commercial banks, was subject to the same rigorous analysis as adopted for the earlier period. Such an extension would have been useful in providing satisfying answers to a few pertinent questions, notably the extent to which growth in direct investments by the financial institutions (other than the nationalised sector) was responsible in diversion of resources to non-priority sectors.

—K.S.V. Sanjeeva Rao

Help Book for Students

Money, Banking, Trade and Finance *by M. S. Rao and S. N. Sen; Published by Premier Book Company, Daryaganj, New Delhi*-110002; 1976 *edition; Pages* 385; *Price Rs* 15.

THIS BOOK is in the form of questions and answers on different topics of the subjects as indicated in its title. As many as 31 chapters have been written for the benefit of undergraduate students of Indian universities.

Most of the questions have been taken from question papers of various university examinatins. The answers are a bit sketchy but they do help a student who does not have the time to read text books and who is motivated to get through the examinations Although such types of books are in plenty in the market, this particular book is a refreshing contrast from the common run. The authors have taken pains in writing the answers and have not sacrificed the quality

Coming as it does from an experienced publisher, the book is an eminently helpful guide to students of commerce and economics for a quick reading before appearing in examinations. It would be right to assume that students who read this book, have some background knowledge from some text-books as well.

—Navin Chandra Joshi

Grass Roots

(*Contd. from Page* 25)

little odds and ends of daily life. She expects to make enough from this source to supplement her husbands' income But there is a catch. A couple of other women are running similar stores and she lacks the capital for the initial investment. "If I had some money, I would give it to my husband to purchase a cycle. This would save us the bus fare at least," she says.

Though the little pleasures of life, like the once-in-a-while movie show, are no longer possible, Shobahi does not regret the move to the city. In her own quiet way she is ambitious and is keen on getting the three children educated. Pointing to some of the brick-and-mortar houses next to hers, she wistfully remarked that she hoped to own one, if not soon, at least when her son grew up and secured a job. For people like her and millions of others the Urban Dream is a reality and this will continue to fire their ambition for a better life.

Courtesy : UNICEF *Feature Service*.

Development Notes

Indian Power Equipment for Malaysia

Malaysia may purchase more equipment from India and employ her consultantcy services for expansian of power programmes Malaysia had so far imported from India equipment worth Rs 300 million for its thermal plants BHEL has secured an order for supply, erection and commissioning on turn-key basis of three 120 MW boilers and auxiliaries for the Prai Power Station in Malaysia The order is valued at Rs 164 million.

The Malaysian Government was examining a proposal for setting up a switch-sugar plant in Malaysia with assistance from BHEL. Malaysia would also soon be sending a team of experts to India for a feasibility study of the Metal Industries Development Centre to be set up in Ipoh, about 170 miles from Kuala Lumpur

Investment by Indian companies in Malaysia until the end of 1973 was estimated at $ 32 million (about 13 million US dollars) which represented the seventh largest source of foreign capital in the manufacturing sector

Indian Steel Consultancy for Nigeria

The public sector Metallurgical and Engineering Consultants (India) Ltd, has been appointed as consultants to the Nigerian Government for setting up two integrated steel plants each with one-million tonne capacity The plants are to be located at Onne near Port Harcourt and Aladja near Warri Each plant will be based on the direct-reduction process and will have iron ore pelletization and sponge iron making facilities, electric arc furnaces, continuous casting facilities and rolling mills They will be established within five years

Under the contract MECON will provide consultancy services covering all sections of the steel industry upto the stage of commissioning of the plants as well as advice on techno-economic matters. MECON will earn $ 10 million as fees.

REC Sanctions 57 New Projects

The Rural Electrification Corporation (REC) has sanctioned another Rs 181 9 million for 57 new projects for the extension of electricity to rural areas in 13 states These projects which cover 3,387 villages will help energise 19,348 agricultural pumpsets and 1,620 small scale agro-based industries in the rural areas. In addition, the schemes provided for about 47,000 domestic and commercial connections and more than 10,800 street lights With these new projects the total number of electrification schemes approved by the Corporation so far has increased to 1,448

Of the new projects sanctioned by the Corporation at its recent meeting in new Delhi as many as 25 are meant for the socio-economic development of the backward areas A special feature of the new projects is a substantial number of mini schemes sanctioned for the energisation of clusters of irrigation pumpsets in small pockets to give a feature boost to agricultural production in these areas.

India-Made Coke Oven Battery

The first-India made Coke Oven Battery 5A has been inaugurated at Durgapur Steel Plant The 39 ovens of the Battery will have 940 tonnes of coal throughput per day and will considerably step up the gas and coke supply in DSP. The entire design was done by Metallurgical Engineering Consultant of India, Ranchi and the Project was executed by Engineering Project India Ltd. and Hindustan Steel Works Constructions Limited Almost the entire supplies were procured from indigenous sources

Silica bricks meant for this Battery were originally planned to be imported from Japan But the idea had to be abandoned owing to a three-fold increase in their price. At this juncture, indigenous refractory manufacturers came forward and made Silica bricks from indigenous sources thus saving the country Rs 5.4 million in foreign exchange

With the commissioning of this Battery, the coke suppy position of the Plant will improve significantly and cost of fuel, specially towards the use of furnace oil for steel melting will be reduced to a great extent.

Detergent Plant for Andhra

The first joint sector synthetic detergent plant in Andhra Pradesh is being set up by Detergents India Limited at Kodur in Cuddapah district Larsen & Toubro Limited (L & T) is supplying the plant, with a capacity of 5,000 tonnes per annum, for formulation, spray drying and powder handling Niro Atomizer of Denmark is providing the technical know-how for the spray drying plant while the formulation has been developed by L & T's own research and development laboratories at Powai.

Detergen.s India Limited will also manufacture 5,000 tonnes of detergent cakes/bars per year. Civil construction for this Rs 25 million project is in progress

Electronics Complex at Dundahera

The Haryana State Industrial Development Corporation is developing an electronics complex at Dundahera in Gurgaon district. Dundahera is situated at a distance of about 10 kms from Dhaulakuan, close to Palam airport, on the National highway

The complex, spread over an area of 185 acres, shall comprise an electronics functional estate, electronics testing and development laboratory, ancillary units of Industrial Development Projects Ltd, Central Electronics Limited and Bharat Electronics Limited. Industrial Complex forms a part of the National Capital Region and will be a string town of Delhi in due course One noteworthy feature of the complex is that all the industries would be pollution free and smokeless

All essential facilities are being provided here and plots of different sizes have been carved for small and medium scale industries

New Power Project for Haryana

The Haryana Government has finalised an agreement with the Himachal Pradesh Government in a joint Nathpa Jhakri Hydel Project, located 150 kms beyond Simla on river Sutlej, upstream of Rampur Bushir in Himachal Pradesh The project will cost Rs 271 crores The cost of transmission lines will be Rs 100 crores It will have an installed capacity of 1020 megawatts Energy generation in a mean year will be 5300 million Kwh

The project involves construction of a gravity type concrete diversion dam on river Sutlej, near village Nathpa and construction of tunnels and an underground power house.

Under the proposed agreement the project will be jointly owned by Haryana and Himachal Governments in the ratio of 80 : 20 per cent and its capital cost will be borne by the two State Governments in the above ratio. The Haryana Government will bear the entire cost of transmission lines to carry its share of power. Haryana Government will have the exclusive rights to utilise 80 per cent of the power generated.

Work on the project will start soon and will be completed in eight years

Tailings Dam at Kudremukh

Work on the Rs 80 million Lakhya dam, to contain ore tailings of the giant Kudremukh Iron Ore Project, got off to a good start with the first sod turning at site, ahead of schedule.

The 670-metre long and 66 metre high dam across the Lakhya, a tributary of the Bhadra, is the first of the two large earthen dams aimed at preventing pollution of the waters of the Bhadra. This involves 30 lakh cubic metrs of earth work and a storage capacity of 118 million cubic metres. The dam will cover a reservoir over three million square metres, storing tailings of the ore rejects, after the iron ore is concentrated. Huge silt deposits of tailings will settle in this reservoir, preventing the impurities getting into the Bhadra.

Each year 22.6 million tonnes of ore will be mined, of which 7.5 million tonnes of concentrate, with an average iron content of about 66 per cent, will be beneficiated and pumped to Mangalore through a 70-km pipeline, as slurry.

The Lakhya Dam will store about 13 million tonnes of tailings per year. From Mangalore the iron ore concentrate will leave in special ships for Iran. The target date for shipment is September, 1980.

Kerala Newsprint Mill

The Rs 100 crore Kerala newsprint mill in the public sector at Velloor, about 40 km from Cochin would go into production in October, 1978, as scheduled. The mill would produce per annum 80,000 tonnes of white high quality newsprint, as good as the imported variety.

The Kerala newsprint factory is unique as it would be using, for the first time in the world, hardwood as the main raw material. There is also provision for expansion or doubling the production capacity subject to the availability of the raw materials. West Germany had provided 30 million marks (Rs 10 crore) as long term loan for the purchase of a paper machine from that country and mechanical pulp plant would come from Sweden. The chemical pulp plant and boiler equipment would be indigenously fabricated.

Power Generation Improves in U.P.

The second unit of 110 mw capacity Panki Thermal Station in Uttar Pradesh will be commissioned soon. Two units of 55 mw each are under commissioning trials in Harduaganj power station. Over the last two years, there has been significant improvement in the power position in the State. The installed capacity has been increased from 1,674 mw in 1973 to 2,379 mw in January 1977, an increase of 705 mw. Similarly, energy available from all sources improved from about 20 million kwh per day (average) in 1973-74 to about 34 million kwh per day in 1976-77. A maximum of 37 million kwh was reached January this year.

Investment in the power sector during the current year was Rs 231 crore. New schemes like Tehri Dam Project, which ultimately will have an installed capacity of 1,800 mw, and Lakhwar Vyas Reservoir Scheme of 460 mw, have been taken up. In addition, work on Vishnu Prayag (262 mw), Pala Maneri, (204 mw), Maneri Bhali Stage Two (156 mw) have been included in the programme for 1977-78. Two Central Stations Narora Atomic Station (460 mw) and Singrauli Super Thermal Station 2,000 mw- are also under construction.

Sizable Increase in Exports to USA

India's export to the United States touched $710.2 million last year, registering an increase of 20.5 per cent over those during 1975. Imports from the US, however, declined to 12 per cent to $1,134.7 million. India's trade deficit with the US thus came down to $424.5 million, in 1976 from $741.5 million in the previous year. The two-way trade between the two countries increased slightly by about 0.38 per cent to $1,844.9 million in 1976 over that in 1975. Notable performance among exports, was in ready-made garments and accessories. These fetched $79 million against $69 during the previous year.

Exports of other commodities, which registered considerable increase are iron and steel bars and wares (121 per cent), sugar (114 per cent), marine products, including frog meat (98 per cent), leather and leather manufactures (80 per cent), hand and machine tools (54 per cent), metal working machines and machine tools (35 per cent) and diamonds, jewellery and other gem stones (70 per cent).

Fisheries Development in NE Region

Two investigation schemes have been initiated by the North Eastern Council in its efforts to exploit fully the economic potential of fisheries in the North Eastern Region.

Under one scheme it is proposed to have an in-depth study of the Hydrobiological conditions of water bodies which retard the development of fisheries. The study is expected to evolve remedial measures for minimising fish seed mortality and for promoting growth of fish in water bodies. The study, to be conducted by the North Eastern Hill University, will at present cover Meghalaya and Nagaland.

The second scheme is for a scientific study of Orbost lakhs or beals, in Assam in order to determine and augment their utility for fish culture. The study, to be conducted by the Zoology Department of the Gauhati University, will seek to find out ways and means for the improvement of the productive fishery bed of Assam in a commercial scale.

The findings of the study will have relevance to utilisation of similar water bodies in Manipur and Tripura.

Of the earlier schemes for fisheries development initiated by NEC, the Regional Fish Seed Breeding Farm at Kumarghat in Tripura, set up last year has already gone into production and the expansion of Fisheries Institute at Joysagar in Assam is under implementation.

India's First Electric Trolley Bus

The Electric Trolley Bus, designed and manufactured for the first time in India at BHEL Bhopal, has passed the trial run at Calcutta. Calcutta Metropolitan Development Authority (CMDA) is likely to get considerable assistance from World Bank for introducing trolley bus on a fairly large scale. There are also indications [illegible] some metropolitan cities in India are giving thought to [illegible] mode of transport. This would be an entirely new line [illegible] manufacture of equipment at BHEL-Bhopal on a large scale and would help resist the hike in oil prices and conserve foreign exchange.

The bus has a capacity to carry 54 passengers. Its maximum speed is about 40 kms per hour. The body is streamlined and elegant and fitted with foam rubber cushion seats and also three ventilating fans for passengers' comfort. Control gear equipment for the bus, such as controller, resistors, switch group frame etc. were specially designed and manufactured at Bhopal.

Hotels for Tourists

As may as 69 hotel projects, approved by the Department of Tourism, are in various stages of construction to cater to the increased flow of tourist traffic. On completion, these hotels will add another 5,800 rooms to the existing accommodation. The new projects, which are in the private sector, include 18 hotels in the northern region, six in the eastern region, 13 in the western region and 32 in the southern region. Hyderabad, with 11 hotel projects, tops the list, six new hotels are to be constructed in Madras, five each in Delhi and Bombay, four in Varanasi and three each in Patna and Bangalore.

With a view to encouraging hotel construction in the private sector, a provision of Rs 10.2 crores has been made in the Fifth Plan for grant of loans through the Industrial Finance Corporation of India. During 1976 loans amounting to Rs 1.96 crores for eight hotel projects were sanctioned.

More Roads for Northern Border

The Centre has given its approval to the construction and improvement of 854 km of road at a cost of Rs 28 crores in the remote areas of nothern and north-eastern border. The programme already included in the final Fifth Plan involves new construction of 625 km and improvement to 219 km of roads. The special border area programme will cover Jammu and Kashmir, Himachal Pradesh, Uttar Pradesh, Assam, Arunachal, Meghalaya, Mizoram, Nagaland, Manipur and Tripura. The Border Road Development Board will execute the work, but the entire expenditure will be borne by the Union Government. The programme will help the economic development in the remote areas and bring about more social cohesion among the people living in the hilly regions.

One of the most important new roads will be the Sansari-Killar - Pangi - Thirot road covering a length of 117 km in Himachal Pradesh. The cost of construction on the project is estimated at Rs 3.75 crores.

New Handicraft Centres

The Handicrafts and Handloom Export Corporation and the All-India Handicrafts Board are planning to start another 365 centres this year to create work force of some 30,000 weavers by the end of the Fifth plan. This follows the unprecedented response by over 200 training centres started by the government last year to provide skilled manpower for the growing carpet export industry. Carpet exports from the country picked up enormously in the past few years rising from a mere Rs 11.69 crores in 1969-70 to Rs 41.43 crores last year. Exports of handwoven carpets from the country this year is likely to exceed Rs 50 crores.

VOL. [illegible] 1-14 May 1977

yojana

A STRATEGY FOR PLANNING

WHITHER OUR EXPORTS

YOUR OWN R & D

OUR CULTURAL SCENE

Printed at Universal Advertisers, E/2, Jhandewalan Extn., New Delhi-110055, and Published by the Director, Publications Division, Patiala House, New Delhi-110001.

YOJANA

Volume XXI Number 7
New Delhi
1 to 14 May, 1977
11 Vaisakha 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan, but is not restricted to expressing the official point of view

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IN THIS ISSUE

Editorial Office: Yojana Bhavan, Parliament Street, New Delhi-110001. **Telegraphic Address**: Yojana, New Delhi, **Telephones**: 383655, 387910, 385481, extensions 402 and 420, **Circulation**: Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription; Annual—Rs. 18, Two years—Rs. 30. Three years—Rs. 42, **Foreign Subscriptions**: One year—£2.70 or $5.50. Two Years—£4.50 or $9.00. Three Years—£6.30 or $12.50 Single copy—eight pennies or $0.25.

EDITORIAL

DEVELOPMENT AND TOTAL REVOLUTION

No philosophy of development which has relevance to a country like India with a backlog of centuries can be credibly pragmatic if it did not postulate the urgency for a new value system. With so much to catch up and so much to do away with, a vast and complex nation like India cannot think of a half-way house to progress. In Shri Jaiprakash Narayan's recent message to the nation there is a confirmation of the basic social and ethical values without which all developmental efforts would become a mockery, with the price having to be paid by the whole country in the form of incompetence, corruption and wastage of the nation's limited resources.

In every sense it is the people who make or mar their own future and what J.P. appealed for is a conscious and deliberate appraisal of what is good in our heritage and what is obviously worthy of rejection. Into this category fall several social customs which people in thier ignorance cling to and pay a heavy price in the form of individual suffering and apathy for social good. JP's emphasis was on the concept of people's involvement in democracy which should not be confined to the periodical ritual of electing their legislators but result in constant vigilance on the functioning of institutions and the behaviour of men in authority.

Obviously this concept cannot have any meaning to the people if it were not to influence and canalise the immense potential of the country for its betterment. The process of development since the last 30 years has been guided in a manner that places governmental authority above local initiative. Local initiative in harnessing local resources for solving urgently felt local problems has rarely been in evidence. Whatever the benefits of the Plans—and there are indeed many—have reached the people but slowly and grudgingly and allocation priorities have often been decided on arbitrary or doctrinnaire considerations.

This point perhaps needs some elaboration. For example it would be difficult to answer the question why, after 30 years of planning, we are still unable to supply protected drinking water to more than 60 per cent of our people. Go to any villager and ask for his frank opinion on how planning can benefit him.In most cases he will mention water for irrigation as priority number one, with roads, electricity and hospitals coming next in that order. His is a sensible observation, however illiterate he may be. That we need cement, oil, fertilizers, steel, and heavy machinery of our own make is beyond doubt. But the villagers would like to ask some fundamental questions even if they appear to be naive. He would like to know why the politician should have the last word on what the field engineer has to say. He also wishes to know where exactly the grass roots of our planning process lie, for he is not quite sure if agriculture, land reforms, transport, housing and public health have peen accorded the importance they deserve. The monitoring system has its deficiencies and institutionalised reporting is far too inadequate to provide the feed back that the planner and the administratior so badly need to make the development process a facet of functioning democracy,

There have been encouraging hints from the new Government that there would be a second look at the 5th Plan, even though it is in its final stages of implementation. Whatever the results of this exercise might be, the country has the satisfaction that the newly elected Government will not hestitate to make radical changes in the working of institutions charged with development efforts. India has an immense man-power which is going unutilised.

Formal education in schools and colleges has only helped to swell the ranks of educated unemployed. We have not harnessed more than about a quarter of our water potential for irrigation and we are caught up in nightmarish Inter-State disputes on the sharing of river waters. We have immense hydel potenial as yet untapped in the Himalayan and sub-Himalayan regions, yet we are far from enunciating a national policy on their exploitation. The Government alone with its resources will be unable to take on the development of all the resources simultaneously. But the answer to this, as yet unsolved problem, is to involve the immense manpower in the countryside in democratic development that will ensure local initiative and harnessing of local resources so that living conditions become a shade better. The task is not easy because it involves a total revolution. The Government can be an effective catalytic agent in transforming the countryside but it must consciously encourage honest and well-meaning efforts at village levels for self-betterment. This is possible only when the image of the entire administrative machinery is refurbished to eradicate political corruption and enthrone local leadership. Clearly defined duties must go with clearly demarcated resources and authority. Now India has need to reaffirm old and well-tried truths. Three cheers to democracy!

The present planning strategy is to concentrate investments in urban areas with the result that only a small minority is enjoying the benefits. Rural areas where 80 percent of population lives is starved of resources. Thus the gap in the level of income is widening and unless this process of lopsided development is reversed, there is hardly any scope of improvement in the employment situation says

Dr. RABINDRA NATH

The Strategy for Planning

THE PRIME MINISTER has called for a revision of the Fifth Five Year Plan which is urgently needed. The planning is at a cross road today Industrial progress is hardly encouraging. Unemployment has raised its ugly head. The distribution of income is lopsided The poverty line is continuously going up. Today we can easily put fifty per cent of the population under this line. An increase of nearly 12 per cent in prices during the last one year is creating again disequilibrium in the economy and it is the poor who are suffering most on this account.

The fundamental question arises why this disequilibrium has been allowed to develop to criple the economy. If we go back to two decades of planning, we find that during the first decade, the rate of growth of agriculture was 3 6 per cent per annum. During the second decade of planning, the rate of growth of agriculture and industry had fallen to 1·6 per cent and 3·5 per cent respectively. While the growth rate of services was 6·0 per cent per annum.

This situation has developed during the second decade of planning due to the set thinking about the feasibility of taking up defence and development at the same time. It is easy to say that there are resources sufficient to look after defence and development. But it can be seen from 1962 onward when we started diverting resources to defence that the economy started developing strains. After the war of 1965, the situation became much more severe and after 1971 war, the economy had completely gone out of gear It is beyond doubt that the economic crisis of today is the result of disproportionate expansion of publio expenditure to the overall production.

Dr. Rabindranath is Senior Research Officer, Planning Commission

There is unwarranted alarming increase in the non-planned expenditure, which includes expenditure on defence and administration In the present circumstances the economy is finding it difficult to bear the increase in non-plan expenditure on defence as well as on administration and there is need to effect economy on both items

It would have been much better for the planners to curtail the outlay of the plans instead of going for deficit financing In that case, our rate of growth would have been projected on a lower key but the planning process would not have faced a stagnation during 1965-75

In the planning process good amount of investment have gone in industry as well as in agriculture But the returns which we are getting from these investments are too low. During the last decade the performace of industry was much sluggish and about 50 to 60 per cent of the capacity was utilised. In such a situation the foremost emphasis should be laid on the full utilization of capacity. There is no use in establishing more and more capacity whch remains unproductive. We are unable to supply power and raw material to even present established capacity in industry. Further, the development of industry has taken place in such a way that the fruits of development have gone to a privilege delite and if we go on emphasising on industrialisation on the present pattern, the improverished masses would go on expanding.

At present, there is an urgent need for decentralisation of production process to create employment opportunities for regional talent. With the emphasis on industrialisation, the village is ignored and if the same policies are continued, village will not get proper attention in the development process even in future. We cannot ignore 80 per cent of the population living in villages nor can we afford their migration to the cities. Even at present, city life is at its worst. With the development of industrialisation, slums have sprung up in all the cities. Now is the time to give village its due and stop migration from villages to cities failing which life in cities would become unbearable.

The best alternative lies in developing agriculture and village and small scale industries. Greater emphasis may be placed on the development of animal husbandry, forestry coupled with agro-industries. Side by side, there should be development of soil and water conservation to improve the fertity of the land. The whole development work in rural areas should be based on certain principles. The principles called for programmes based on local resources, help the people with intimate expert counsel, involve the whole community irrespective of their socio-economic status, plan for diversified economic activities and concerntrate on quality rather than on quantity.

The foremost task of planners is to provide food, clothing, housing, services and social security, employment and education to break the chain of misery. Industrialisation increases productivity no doubt but it starts with the assumption that the production factor 'labour' is in short supply than 'capital'. But with us, the position is the other way round. We are short of capital while production factor 'labour' is in abundance To establish industry with heavy capital per worker needs huge capital resources. In the present situation, greater emphasis on industry would result in jobless millions which is likely to upset the present social set up. The present production pattern provides consumer goods only for the minority at the expense of majo-

would only perpetuate the present production set up. In the field of agriculture, traditional farming methods require much less capital Here, the yield can be improved either by putting more capital or by more labour. We should try to improve the yield by making agriculture labour intensive. In the field of high yielding varieties, development should be carried out in such a way that greater number of persons work more productively with minimum amount of capital. This can be made possible by increasing the use of organic manure and with the introduction of multiple cropping system. The labour intensive efficient agriculture system depends upon the development of irrigation system, roads, credit facilities, and storing facilities for the farmers. The farmers also need basic education and minimum health services. By developing the required infra-structure, we can help small farmers to have a satisfactory existence in the village.

National interests have to be kept in view while planning. It is necessary to bring the lowest 30 per cent of population upto standard consumption. Therefore, this 30 per cent have to be brought up to the level of the next quartile as quickly as possible. All resources have to be developed and utilised subject to the priority to the criterion. Since the rate of development in prosperous districts is high there should be a policy where such rates of gowth are curtailed so that thé resources are diverted from prosperous areas to backward areas. Social justice and growth demand such diversion. Political pressures has to be avoided to achieve these results. Otherwise, permanent inequalities would be generated and whole purpose of planning would end in failure.

At present, there are differences over priorities which need to be protected from adhocism. Physical achievement and efficiency have been sacrificed in favour of financial evaluation. Some of the parameter have undoubtly changed and an element of distortion introduced in the forecast by external factors. But basically public confidence has been shattered by the government's present policies. Though we have invested huge sums in agriculture, yet we imported 12 million tonnes of foodgrains during the first Plan, 17 million tonnes during the second, 26 million tonnes during the third plan, 13 million tonnes during the 4th Plan and 5 million tnnes in the first year of the Fifth Plant. We are unable to shed idological cobwebs and consider it much better to import crores of rupees worth of fertilizers than permit foreigners to set up factories.

The country would like to see evidence of zeal on the part of Central and State Government to implement the reforms already in the statute book and pluck loopholes that have permitted widespread evasion. Even so basic and obvious a task as the preparation of an accurate and up-to-date records of rights have not been completed over large parts of the country. Time bound programme to accomplish this task hav been solemnly announced periodically, tongue in check the official policy in this regard apparently being to say the right thing and then deliberately do nothing. In 1973, a Task Force appointed by the Planning Commission under the leadership of the Land Reform Commissioner made his scathing report bluntly attributing the failure of agriculture reform to lack of political will. This is a problem which has become more pressing with the passage of time

At present, we have created highly sophisticated capital intensive and capitalistic industrial sector on a premitive and traditional agriculture sector incapable of supporting the additional demand created by the large investment in the industrial sector. If we have tried first to usher in land reforms making the tenant rightful owner of land and then pumping in larger amounts of capital to modernise the agriculture sector and to build up the necessary institutional frame-work such as services, centres cooperatives etc. and then use the additional investible surplus generated by the agriculture sector to build up the industrial base giving priorities to agro-industries and basic industries we could have averted the economic disaster facing the country In the present circumstances, the following measures assume much importance:

1 Vigorously implement land reforms, intensify research on dry farming, take steps to collectivise the farming on uneconomic holdings and increase production of agriculture inputs, particularly non-labour saving chemicals inputs such as fertilisers, pesticides etc.

2. Constitute an army from unemployed able bodied persons who could concentrate on soil conservation, land reclamation, extensive work, digging of wells, population control etc.

3. Divert the production of essential raw materials such as steel and cement which would remain surplus to agricultural sector for building dams, bridges, storage facilities etc.

4. Since the stagnation in industrial sector would deprive the government of substantial revenue, it should introduce different rates of corporate taxation whereby industries manufacturing luxury goods such as air conditioners, referigerators, toothpaste, chocolates, liquor etc. would have to pay substantially higher rate o taxes (80 to 90 per cent of the profits). This would not only ensure increase in revenue to the government but also reduce the consumption and divert the investment to the manufacturer of essential commodities.

The present restrictive monetary policy has already paid good dividends. To check inflation, it is of utmost importance, that no relaxation should be brought about in this policy. It is the availability of cheap credit which has damaged the economy considerably. At present the corporate sector is collecting deposits from the public. In this way, they are circumventing the restriction imposed on the availability of credit. And immediate action is required to stop the Corporate sector from collecting unlimited public deposits.

Past experience in this country has shown that mere materialistic approach to development strategies will not bring out any radical transformation in the conditions of the poor. The bemoaned optimism to achieve targets without inducting the much needed socio-cultural ingredients in the system will remain a far cry. What is needed is action packed result oriented development programmes to be implemented on a consistent basis. So long as the farmers are deprived of an efficient support mechanism backed by price incentives, motivating them to produce more it will not have the desired impact.

Unemployment

The problem of unemployment is bedeviling any solution. The country had 3 3 million unemployed at the beginning of the First Plan. The number of unemployed increased to 5.3 million at the end of the Plan. But the planners did not think of correcting the structural defect of planning priorities with the result that the number of unemployed want upto 9 million jumping to 11.5 million by the end of the Third Plan. The Planners thought to reduce unemployment by not specifying the number of unemploed in the body

(Contd· on page 37)

MASSIVE PROFITS TO SUPPLIERS

THE DECEIT OF

FOR THE PAST 30 years, for as long as the United Nations has existed, international conferences have succeeded each other with monotonous regularity Every so often, one of them is hailed as historic, like the special session of the United Nations General Assembly in April 1974 on raw material and development. Other examples are the various UNCTAD meetings, although the latest, in Nairobi, was no longer able to to sustain the illusion. Nothing constructive has so far emerged from all the brilliant rhetoric of these abortive gatherings The initial shock of the capitalist world, faced in the middle of a recession with the revolt of the oil-producing countries, has, since 1975, given way to a renewed determination to regain the offensive, not only in terms of economic recovery at home but also in order to recapture control of world markets. According to the 1975-76 annual report of the General Agreement on Tariffs and Trade (GATT), "the value of exports from industrial countries rose by seven per cent (in 1975), mainly due to a 60 per cent increase (compared with almost 80 per cent in 1974) in sales to the oil-producing countries". In other words, the industrial nations have managed to turn to their own advantage the sudden acquisition of wealth on the part of their trading partners.

This, of course, is the reason for the failure of UNCTAD initiatives and the North-South dialogue: if the world economy is based on nothing but commercialism, all the fine theories are bound to come to grief when confronted with the powerful interest of the trading countries of the North. With a monopoly on saleable goods (even oil would not sell without the profits expected from its by-products) the industrial powers have complete control over world trade. It has become altruism to say that not only goods but also transport, credit and the entire commercial system are in the hands of the rich.

ennial background to international relations in order to place in historical perspective the futility of negotiations based on even the remotest hope of concessions from the industrial nations What is more serious is that it throws into relief the inherent limitations of those sudden outbursts of aggression on the part of countries which produce raw materials, whether it be by raising the price of crude oil or nationalizing foreign firms. In both cases the lack of communication between North and South has shown beyond a doubt that economic relations are still governed by commerce alone

Sales—that is the magic word, the universal law which is everywhere condemned and everywhere applied The result is another cliche, the sole objective of internatonal co-operation for development is to find additional markets for the lending countries Evidence of this is the fact that for the past 30 years the loans granted by the "haves" to the "have-nots" for purposes of development have been tied—in other words made conditional upon more or less compulsory purchases from the countries which grant them In view of the fact that 65 per cent of the "aid and credit for development" allocated to the developing countries is in the form of loans, it is easy to understand why the North-South dialogue has foundered on the chronic and increasing burden of debt assumed by the countries supposed to benefit. Even more significant is the fact that multilateral —presumably not tied—financing accounts for only 16 per cent (1974 figures) of the loans. Clearly the Third World is caught in a vicious circle: loans with strings attached have become established practice.

System takes over

From the moment development projects are first conceived, the system takes over; the lending countries, eager for markets, vie with each other in making generous offers in the name of international co-operation. Obviously, when a European country makes loans to Third World customers, it does not insist on its of criteria which only its own firms are in a position to meet. The research and development departments are expected to ensure that the technical plans coincide with the capacity of the parent companies who will do the building or provide the equipment.

The fashion for turn-key contracts for factories has only served to strengthen the system. The engineering companies offer a package deal covering the entire process from initial technological research to handling over a fully-staffed factory, including drawing up plans, buying equipment, supervising building work and training personnel.

No one is any longer deceived by the conjuring tricks of the lending countries, but the loans are in fact accompanied by credit facilities which at first sight appear extremely attractive: longer repayment periods apparently reasonable interest rates, quicker and easier administrative formalities. Even before the contracts are signed , French, Germans, Russians (they do the same thing) or Americans obtain a guarantee for the future. The loans provide parent companies with almost boundless conracts not only for supplies and construction but also for technology and technicians, maintenance and expansion

Inflated prices

As if trying to propitiate the goods, international gatherings are loud in their denunciations of fraud. Little good this does, since it is the aid to development itself which is deceptive There are no loans for developing countries but only export subsidies for the lenders themselves. Whatever they may be called, loans to the Third World are aimed solely at encouraging the exports of the countries which make them. What this means is that development aid is good business; tied loans ensure that markets are guaranteed in advance, trade risks are automatically eliminated by the lack of competition and financial risks are non-existent since it is the countries of the parent companies which pay. In

TIED AID

SENNEN ANDRIAMIRADO
Economic journalist from Madagascar

goods but also fix the prices for them.

In the 1960s, Dr Mahbub Ul Haq, then Head of the Pakistani Planning Commission, made a fully documented denunciation of the exaggerated profits made at the expense of the Third World by the providers of tied loans. Referring only to goods of equal quality, he showed that France, for example, was selling railway engines and track to Pakistan at a price which was 87 per cent higher than that offered by the Germans, Japanese, Danes or Czechs; Japan was lending money to Pakistan in order to sell rice mills which were 120 per cent dearer than those which Germany could have supplied; the United States was selling railway carriage wheels which were 147 per cent more expensive than those offered by Japan; and France was selling ventilation pipes 392 per cent dearer than the Japanese article.

Avoiding the pitfalls

Examples are legion and occasionally surprising. According to a confidential report of the World Health Organisation (WHO), India is still buying vitamin C from the United States at $10 kilo whereas it could obtain it elsewhere at $2.40 a kilo The fact that India is seeking aid means that it must pay the full price. This is what is known as aid to development. Caught between the governments of the rich countries and the economic operators who are the real decision-makers, the developing countries are more or less obliged to accept conditions of this kind.

At this point it becomes possible to assert that the more credit is provided for development, the more the lending countries benefit by the boost given to their exports, This statement, which those who are seeking to maintain their illusions may describe as cynical, leads on to a question. Is there no way for the Third World to avoid the pitfall of loans from countries which are first and foremost traders? The question has many replies.

One is a political decision which currently seems only to have been adopted by Cambodia, as it was in the past by China and North Korea—almost complete isolation from the international trade system. A basic structural limitation prevents the majority of Third World countries from following this path: the bourgeois character of the ruling masses who often have connexions with international capitalism rules out any economic policy not based on trade. Whatever the declarations of intent, the development models adopted by the Third World are still essentially capitalist, if not imperialist insofar as they follow the pattern of the prevailing economic system of the industrial and commercial nations.

Seeking strength

A second answer would be to aim at a fundamental transformation of the international economy. This is the attempt which is being made at the moment by means of guerrilla warfare on an international scale. harrassing tactics using oil as a weapon, continual revolt by the producers of raw materials, maintenance of a permanent atmosphere of economic insecurity. The trouble is that these weapons are not inexhaustible and coffee from Colombia or vanilla from Madagascar hardly have the same striking force as Saudi Arabian oil.

What the Third World is seeking is to strengthen trade between developing countries This new plan of attack, launched (or rather re-launched) at Colombo in August 1976 by the non-aligned countries, has already been put into operation in the form of decisions taken at the economic meeting of the Group of 77 in Mexico in September 1976. In the long term, it might prove a threat to the present trading nations whose true Achilles heel is their commercial interests. Because it is idealist and because it tackles the problem of international economic relations at the source, this solution is probably the most desirable. The new international economic order is based on the search for a structural transformation of this kind. But success is a long way off—Rome was not built in a day.

A secret weapon

In the short term, therefore, it seems necessary to find specific solutions within the framework of the existing rules governing the world economy. Such, at least, is the answer proposed by the Peruvian economist, Hernando de Soto. His idea is simple if only the rules of the market economy were applied, the Third World could already have revolutionized international trade. What this means is that because all the lending countries adopt the system of tied loans, the developing countries could force them to complete with each other.

A piecemeal solution insofar as it applies to projects undertaken individually, this approach is nevertheless attractive. It exploits the commercial instincts of the industrial countries in order to undermine their oligopoly in terms of the Third World markets. Hernando de Soto's secret weapon is to make available to the developing countries an information centre which will provide on a comparative basis the necessary data for choosing associates. Although the industrial exporting countries have their own information services, so far there has been a major gap in information available to the Third World: no publication or organization provides comparative documentation on the financial, commercial and technical conditions which the potential associates are in a position to offer.

As long as the international economy remains based on market considerations, in an exclusively commercial arena dominated by trading powers, competition would seem to be the most immediately effective choice of weapon Strenthening trade within the Third World is a step in the same direction: in the long term it would upset the arrogant self-assurance of the trading nations. Then would be the time to resume the North-South dialogue. ☐

(*Courtesy* . DEVELOPMENT FORUM

Correction :

In our issue dated 1-14 April 1977 on pages 7 and 9 pleas read Janata Party in place of BLD.

A MEMORABLE YEAR FOR REGIONAL RESEARCH LABORATORY-

THE YEAR 1976 has been a memorable one for the Regional Research Laboratory Jammu. One of the four multi-purpose units of the Union Council of Scientific and Industrial Research, the laboratory with its know-how and technology has associated itself with many important projects in operation in various parts of the country It has now started venturing outside the country too.

The most adventurous activity of the laboratory relates to the extraction of borax and sulphur in Ladakh for which the machinery was also designed, fabricated and installed by the laboratory technicians themselves. Its other works include development of a solar dryer for scientific dehydration of apricots of Ladakh, establishment of a factory for packing cases from pine needles, development of technical know-how for indigenous furs and suede leather from locally available sheep and goat skins Its method for processing citric acid, an important industrial material, has also reached a much advanced stage.

Borax is a strategic material, extensively used in many industrial products, pharmaceuticals, glass, and ceramics Presently it is entirely imported involving considerable foreign exchange It is found in India only in Ladakh in Puga valley at an altitude of over 4500 metrs. The Regional Research Laboratory (RRL) Jammu successfully evolved a process for extracting refined borax from the crude material obtained from surface encrustations and also devised and installed a machinery right in Puga valley using the geothermal energy available there. Incidentally this is the first use of geothermal energry in India. In 1976 the laboratory handed over the machinery and know-how to J. & K. Minerrals Ltd, a J & K Governement public sector enterprise. Very recently the capacity of the machinery has been increased from processing one tonne of crude borax daily to five tonnes

Moreover, RRL has now developed know-how for making boric acid based on this indigenous raw material Large scale trials have been successfully completed and the process is being released for commercial exploitation

Similarly RRL has also designed and installed machinery for extraction of sulphur from surface deposits in Ladakh in Puga valley. The work is being scaled up gradually to reach the stage of commercial exploitation. Sulphur is a strategic material It is used in th manufacture of sulphuric acid whic has wide range of industrial use It was also being wholly importe till now.

Ladakh produces about 150 tonne of apricots annually but their me thod of drying is crude resulting i low variety of apricots which ar unhygienic, too The process more over, takes a long time Takin advantage of the intense heat an fast winds during the day in Ladakh the RRL has developed a sola dryer which is much faster, mor hygienic and results in high grad of dried apricots The equipmen is simple to use and its constructio is so simple that it can be fabricat ed even by village artisans themselve

Thousands of tonnes of pin needles go waste in jungles Th RRL has evolved a process for mak

A section of the big complex of modern buildings housing the RRL Jammu

Shri Saraf is a free-lance Journalist.

SURAJ SARAF

JAMMU

ing packing cases for apples out of them. On account of large export of apples both from J&K and Himachal Pradesh hitherto huge quantities of valuable wood were being used for making these packing cases. RRL has already established a factory for making packing cases from pine needles for Himachal Pradesh government. The fibre-boards made from pine needles, used in the manufacture of packing cases, can also be used for walls, ceilings, panels, air bags, picture frames etc.

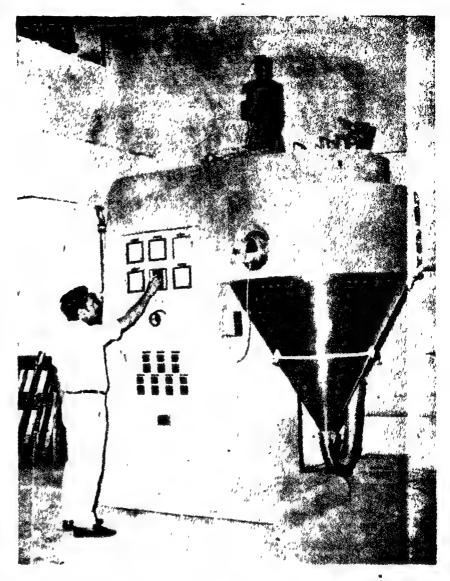
The laboratory has also made pine wool out of pine needles. It is used as stuffing material and for thermal insulation. There is scope for its use in rubber foam also. The process has already been released to some firms for commercial production. RRL has also worked out processes for the conversion of rice straw and other industrial wastes into boards.

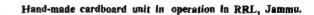
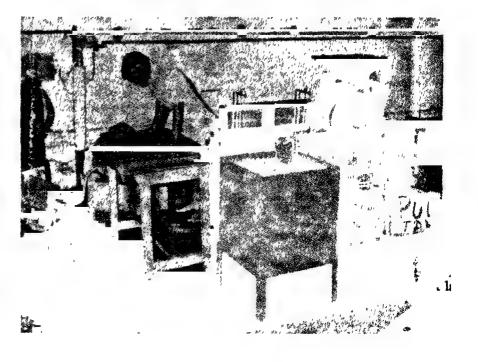
Fur and Suede Leather

Fur industry of J & K, which is the only industry of its kind in the whole of country, was facing acute shortage of conventional fur skins from wild sources. The RRL, therefore, searched for a process for converting locally available sheep and goat skins into furs and suedes and successfully found it.

To carry out this important job a full-fledged Fur and Wool Technology Block with modern equipment had been set up by the laboratory about a year and a half back.

Drugs

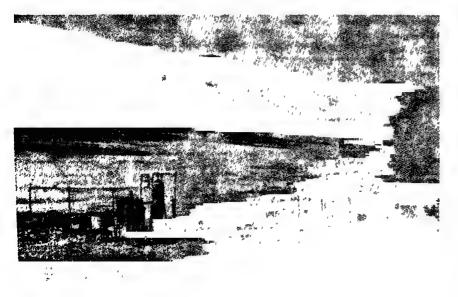
The RRL is also working on several drugs to save country considerable amount of foreign exchange. Most important current project in hand is that of scoparone obtained from artemesia a com-

Spray Drier which converts solutions into concentrates to yield powdered material

Hand-made cardboard unit in operation in RRL, Jammu.

mon shrub available in Jammu region. It has a marked hypotensive and tranquilizing property. After the successful experiments carried on over the past four years on animals, the Drug Controller of India has now permitted the RRL to experiment with it on human beings in two hospitals in the country viz Medical Hospital, Jammu, and Seth G S. Medical College, Bombay. Process for isolation, synthesis and assay of the drug has been worked out by the organic chemistry division of the RRL and pharmacological studies have been completed by the Pharmacological Division.

The laboratory is also working on Vasicine, an alkaloid of Adhatoda Vasica (Vasaka) It is a potent uterine stimulant and abortificient. The process for the isolation of vasicine and the preparation of its hydrochloride has been worked out.

The laboratory has also evolved a process for manufacture of progesterone, an important female sex hormone, which is widely used as a remedy for irregularity of menstrual cycle, and in maintenance of pregnancy. The hormone is also used in controlling habitual abortions in cattle and other animals.

Progesterone is a costly drug which was being imported. The process developed by RRL is facile and employs only the indigeneously available solvents, chemicals and equipment.

The starting material for progesterone is diosgenin which was being obtained from the plant dioscorea growing wildly in higher altitudes in western Himalayas But due to its over-exploitation its availability is fast decreasing. However, RRL has sought an alternative source for this active agent It has found that plant costus speciosus is an ideal supplementary source for diosgenin. Costus speciosus grows wildly throughout the foothills. Moreover, RRL has successfully cultivated it and found that it can grow under different agro-climatic conditions In addition to that RRL has also found that plant Solanum khasianum yields an active solasidine content which is analogue of diosgenin. This plant can be cultivated throughout the country The laboratory has also evolved a special strain of this plant which yields larger quantities of the active agent viz 2.5 to 3 per cent as compared to only 0.8 to 1.7 per cent in the wildly growing plant.

RRL has also processed a non toxic food protectant with high efficiency After a large scale screening of plants carried out by the laboratory it discovered that the vapour and oil of Acorus calamus, which grows throughout the country as a weed and is being used in indigenous system of medicine, can effectively control rice weevil, pulse beetle, red flour beetle as also furniture/carpet beetle and the fire bert. It is specially useful in Indian conditions because our farmers having small living quarters cannot use poisonous fumigants and being ignorant cannot use insecticides either, as they have obnoxious smells, contaminate food and are also toxic to human beings and other animals.

Citric Acid

Citric acid is an important organic acid found naturally in citrus fruits Till now it was being manufactured by a few multinational companies in the world. It is such a tricky and complicated process that most of the manufacturers take 20 to 25 years of extensive R&D work to develop it. A number of companies after spending millions of dollar on R&D for this process meet with failure due to the very complicated nature of the process. Those who succeed in evolving the process keep it a closely guarded secret

Indian imports of citric acid at present amount to about rupees one crore annually They are likely to double in the next few years due to its uses in industry.

RRL has successfully developed a very versatile and potent microbial culture, for avoiding any pitfalls in the industrial production of citric acid. The stability and potency of this culture have been fully established and its proper maintenance to keep it in active form have also been worked out. RRL has also worked out a suitable medium to obtain its maximum yield and cane juice has also been worked out as an alternative raw material for direct fermentation of citric acid.

After obtaining success with 500 litre capacity citric acid fermenteters the RRL has now taken up, the manufacture of 4000 litre fermenters. This step has been taken up as an intermediary step to 25,000 litre capacity batches for full commercial exploitation. It is note-

(Contd on Page....27)

Borax extraction plant installed by RRL in Puga Valley in Ladakh

Urban Land Ceiling Act 1976

—MAHABALESHWAR NATH MORJ

AN INSTRUMENT FOR DISTRIBUTION OF WEALTH AND PROPERTY

THE concept of the property right is changing all over the world Article 31 of the Constitution of India refers to the right of property. The right to property a fundamental right conferred by Article 31 has since been modified four times by the amendments in the Constitution The Supreme Court of India held in the Golaknath case that the Parliament had no power to amend the Constitution so as to take away or abridge the fundamental rights conferred by Part III of the Constitution To remove the difficulties created by the Supreme Court in the Golaknath case, the Constitution was amended by the 25th, 26th and 29th Amendment Acts. These amendments were challenged in Writ petitions in the case of *His Holiness Keshavanand Bharati Vs* the State of Kerala. The Special Bench of 13 Judges of the Supreme Court unanimously upheld the constitutional validity of the 24th Amendment Act and in doing so overruled the earlier decision of the Supreme Court in the Golaknath case. The Supreme Court held that all the Articles including those relating to the Fundamental rights can be amended provided that the basic structure and framework of the Constitution are not altered. (*Keshavanand Bharati Vs. the State of Kerala – A.I.R.* 1973 *S.C.* 1461).

It was argued that after independence, Government has considerably failed in meeting the demands and expectations of the people. It was said that the rich have become richer and the poor have become poorer. The property was concentrated in the hands of few individuals in the urban areas Among the many kinds of property, acquisition and holding of land was the most important, with scope for black money to get invested. Investment was preferred in land or building thereon because such property cannot be easily stolen or confiscated The government therefore felt it necessary to have effective checks on the holding of urban land by way of imposition of ceiling limits and regulations relating to the transfer or urban land. The Urban Land (Ceiling and Regulation) Act was, therefore, introduced in the Parliament This Act aimed at the following objectives viz. (1) to prevent concentration of urban property in the hands of few persons and speculation and profiteering therein (2) to bring about an equitable distribution of land in urban agglomerations to subserve the common good (3) to discourage construction of luxury housing leading to consumption of scarce building material and to ensure an equitable utilisation of such material and (4) to secure orderly urbanisation

Mahatma Gandhi, the Father of the Nation had also once said that "all land belongs to the people" (सब भूमि गोपाल की). To translate and implement this philosophy of the Father of the Nation, undoubtedly a ceiling on land was necessary to enable the weaker sections of the society to have some share in the land This philosophy finds some expression in enactment of the Urban Land (Ceiling and Regulation) Act, 1976

The concept of ceiling emerges from the basic idea of distribution of property Under this Act there are four categories of vacant lan (a) land admeasuring 500 squa metres (b) land dmeasuring 10(square metres (c land admeasuri 1500 square metres and (d) lar admeasuring 2000 square metre The cities of Delhi, Bombay, Ca cutta and Madras are included Category A where the ceiling lim set is 500 square metres. Ahmed bad, Bangalore, Hyderabad, Caw pore and Poona are included Category B where the ceiling lin set is 1000 square metres. There a other 36 towns in the different stat which are included in Category where the ceiling limit is 1500 squa metres. The remaining places are i cluded in Category D where tl ceiling limit is 2000 square metre there are 227 towns which are grou ed under this last category

Ceiling Limit

"Ceiling Limit" has been defin in Sub-Section (c) of Section 2 the Act; ceiling limit means tl ceiling limit specified in Section Section 4 of the Act is divided in 11 Sub-sections

Sub-section (1) refers to differe categories and the ceiling impos thereon Sub-sec (2) refers to tl situation where vacant land situated in two or more categories urban agglomerations specified Schedule I to the Act Sub-se (3) deals with vacant lands wi reference to group housing schem sanctioned by the Competent Auth rity. Sub-sec. (4) refers to restri tions on transfer of vacant lar after 17th February 1975. Sub-se (5) states that where any firm unincorporated association or bo of individuals holds vacant land holds any other land on which the is a building with a dwelling un thereon, the same shall be taken in consideration while determining tl ceiling limit. Sub-sec. (6) says th where a person is a beneficiary of private trust and his share in the i come from such trust is known determinable, the share of suc person in the vacant land shall t taken into consideration while d termining the ceiling limit. Sub-se (7) states that where a person is member of a Hindu Undivide Family, so much of the vacant lan

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Prof Morje, B. Com., B.A., A.C.C S. (LOND), LL. M., is Advocate, High Court, Bombay.

and of any other land on which there is a building with a dwelling unit thereon will be taken into account in calculating the extent of the vacant land held by such a person. Sub-sec. (8) states that where a person, being a member of a housing co-operative society registered, holds vacant land allotted to him by such society then the extent of the land so held by him shall also be taken into account in calculating the extent of land held by such person. Sub-sec. (9) states that where a person holds a vacant land and also holds any other land on which there is a building with a residential unit therein, the extent of such other land occupied by the building and the land appurtenant thereto shall also be taken into account in calculating the extent of land held by such persons Sub-sec. (10) lays down that where a person owns a part of a building, being a group housing, the proportionate share of such person in the land occupied by the building and the land appurtenant thereto shall also be taken into account in calculating the extent of vacant land held by such person. Sub-sec. (11) removes certain doubts in the case of sub-sections 5, 6, 7, 9 and 10.

A person holding vacant land in excess of the prescribed ceiling limit is required to file a statement before the Competent Authority, specifying the location, extent, value and such other particulars as may be prescribed of all vacant land

After the statements are filed under Sec. 6 of this Act with the Competent Authority, the Competent Authority is required to prepare a draft statement of vacant land in excess of the ceiling limit. The Competent Authority is further empowered to prepare the final statement of the vacant land in excess of the ceiling limit (Sec. 9)

The Competent Authority is empowered to take possession of the vacant land even by use of force if any person refuses or fails to comply with the orders directing him to surrender or deliver possession (Sec. 10(5) and (6)

Where a vacant land is deemed to have been acquired by the State Government under Sub-sec (3) of Sec 10, the Government shall pay to such person compensation as stated in section 11 of the Act.

If any person acquires by inheritance, settlement or bequest from any other person or by sale in execution of a decree or order of a civil court or an order or award of any other authority or by purchase or otherwise any vacant land, the extent of which together with the extent of the vacant land, if any, already held by him exceeds in the aggregate the ceiling limit, then he shall specify the vacant land within the ceiling limit which he desires to retain (Sec. 15)

Narrower Definitions of the Words 'Person' and 'Family'.

The definition of 'Person' is very important in the Urban Land (Ceiling and Regulation) Act A person has been defined in clause (i) of Sec 2 of this Act The definition of person includes an individual, a family, a firm, a company or an association or a body of individuals whether incorporated or not.

Under the General Clauses Act, 1897 the word 'person' shall include any company or an association or a body of individuals, whether incorporated or not Section 2(42) of the General Clauses Act (1897) It may be noted that the definition of the term 'person' under the General Clauses Act, does not include a 'family' It is one of the important features of the definition of a 'person' under the present Act that it includes also a 'family'

The word 'family' has been defined under this Act in clause (f) of Section 2 as "Family, in relation to a person, means the individual, the wife or husband, as the case may be, of such individual and their unmarried minor children" A person otherwise than the one who is not competent to contract being a minor i e below the age of 18 years, will be competent to hold property if such person marries before the age of majority, i e. if a boy or a girl marries before the age of 18, such a boy or a girl would be required to file a separate statement under Section 6 of this Act in respect of the vacant land found in excess of the ceiling limit.

A person holding property has several rights and duties under this Act. The definition of the term 'person' includes a family. This Act thus restricts the definition of the world 'family'. The word 'family' merely includes wife or husband of an individual and their unmarried minor children It must be noted here that a Hindu Undivided Family will not be a 'family' under this Act or within the definition of the term 'family'. The presumption of jointness cannot be considered in view of the narrower definition of the term 'family' under this Act.

Further, fort he purpose of determining holding, the property of the husband and the wife also has to be clubbed together as stated in the Notification issued by the Central Government after the enactment of this Act.

Provisions in the Master Plan

In view of the industrial and commercial growth of the cities the Act imposes several obligations on the State Governments to provide for residential zones, commercial zones and industrial zones and such other zones which are necessary for the development of the cities. All the State Governments, therefore, have accepted the Master Plans which try to cater to the needs of development of the city areas The Central Government and the State Governments have introduced plans from time to time in their respective territories. The Government of Maharashtra earlier by the Bombay Town Planning Act, 1954, which was subsequently repealed after the enactment of the Maharashtra Regional Town Planning Act, 1966, had tried to develop and regulate the needs of the urban cities in the State. The Maharashtra Regional Town Planning Act, 1966, has its separate Rules. Greater Bombay has separate development Control Rules.

While considering the Master Plan for urban land the definition of the expression 'urban land' must be taken into account. The said expression is defined in clause (o) of Section 2 of this Act.

The Competent Authority if it is satisfied that land is required by the holder for the purpose of re-development in accordance with the Master Plan, such Authority may permit the holder to retain such land in excess of the ceiling limit (Sec. 22 (2)) Before such holder is allowed to retain the land for the purpose of re-development in accordance with the Master Plan, he should file a statement under section 22(1) of the Act.

The Rule 13 made under this Act states that every application under sub-section (1) of Section 24 shall be made in Form No. 7 which shall contain the particulars specified therein

Powers of the State

The word "State" includes a Union Territory and the State Government in relation to any land or building situated in a Union Territory or within the local limits of a

cantonment declared as such under Section 2 of the Cantonment Act 1924, means the Central Government.

Article 12 of the Constitution of India also defines "State" under the said definition unless the context otherwise requires. The State includes the Government, the Parliament of India, the Government and the Legislature of each of the States and all local or other authorities within the territory of India or under the control of the Government of India.

The word "State" therefore includes; (1) the Government and the Parliament of India (2) the Government and the Legislature of each of the States(3) the local authorities and (4) other authorities within the territory of India or subject to control of Government of India

This Act has not come into force in all the States of the Union on 17th February 1976. The States which have adopted this Act or made this Act applicable at the first instance i e on 17th February 1976 are the States of Andhra Pradesh, Gujarat, Haryana, Himachal Pradesh, Karnataka, Maharashtra, Orissa, Punjab, Tripura, Uttar Pradesh and West Bengal

The States where this Act was not adopted on 17th February were Assam, Bihar, Jammu & Kashmir, Kerala, Madhya Pradesh, Rajasthan, Nagaland, Sikkim and Tamil Nadu, all these States have not adopted this Act.

The State has power to exempt certain lands from the application of this Act specifically referred to in Section 19 of this Act

The Government has also power to exempt vacant land on ground of public interest and on ground of hardship

The Government has further power not to treat vacant land as excess land when such land is used for the purpose of constructing dwelling units for providing accommodation to the weaker sections of the Society.

The Government is also competent to allot any vacant land for the purpose of or relating to or in connection with the industrial or for private residential accommodation.

Co-operative Societies

Under sub-clause (v) of Section 19 of the Urban Land (Ceiling and Regulation) Act, 1976, any co-operative society being a land mortgage bank or a housing co-operative society, registered or deemed to be registered under any law relating to co-operative societies for the time being in force is exempt from the application of Chapter III of the Urban Land (Ceiling and Regulation) Act, 1976, which is the Chapter on ceiling on vacant land. This exemption is subject to the provisions of sub-section (2) of Section 19. The Land Mortgage Banks are now known as Land Development Banks Chapter XI of the Maharashtra Co-operative Societies Act, 1960, refers to such Land Development Banks.

A 'Housing Society' is defined in Section 2 of the Maharashtra Co-operative Societies Act, 1960. It means a society the object of which is to provide its members with dwelling houses (sub-section (16) of Section 2) Queries are very often raised to find out whether it is necessary to seek permission of the Competent Authority if a flat in a housing society is to be transferred to other person As far as Co-operative societies are exempt from the application of the provisions of Chapter III of the Urban Land (Ceiling and Regulation) Act, 1976, it is submitted that permission of the Competent Authority is not deemed necessary

It must be noted that for determining the ceiling limit on vacant land, where the person is a member of a cooperative housing society registered or deemed to be registered under the law for the time being in force holds a vacant land allotted to him by such a society, then the extent of the vacant land so hled shall also be taken into account in calculating the excess vacant land held by such person. The object of such provision appears to be that as there is restriction on the holding of property, a person may not be permitted to hold a property by acquiring it in different housing societies which may result in defeating the true object of the co-operative societies

Exemption of Vacant Land from the Application of Chapter III

This Act aims at prevention of concentration of property in the form of vacant land in the hands of a few persons This Act, however, does not impose any restriction on the land held by the organisations, local authorities, Corporations or other public institutions. The Act, therefore, does not apply to the vacant lands held by—

(i) the Central Government or any State Government, or any local authority or any Corporation established by or under a Central or Provincial or State Act or an Government company as defined in Sec 617 of the Companies Act, 1956 (1 of 1956)

(ii) any military, naval or air force institution;

(iii) any bank;

(iv) any public charitable or religious trust (including wakf and required and used for any public charitable or religious purposes;

(v) any co-operative society being a land mortgage bank or a housing co-operative society, registered or deemed to be registered under any law relating to co-operative societies for the time being in force,

(vi) any such educational, cultural, technical or scientific institution or club etc.

(vii) any society registered under the Societies Registration Act, 1860 (21 of 1860), or under any other corresponding law for the time being in force and used for any non profit and non-commercial purpose;

(viii) a foreign state for the purposes of its diplomatic and consular missions or for such other official purposes as may be approved by the Central Government or for the residence of the members of the said missions;

(xi) the United Nations and its specialised agencies for any official purpose or for the residence of the members of their staff,

(x) any international organisation for any official purpose or for the residence of the members of the staff of such organisation

After the implementation of this Social Economic Legislation, it is expected that (i) the speculation in the land and concentration of urban property is expected to reduce day by day, (ii) a great deal of haphazard and unplanned growth will be stopped, (iii) value of land will be checked if not reduced or at least it will not be allowed to rise beyond reasonable limits, (iv) the builders and contractors will be induced and required to have their new projects outside city limits, (v) the land will be made available for the Public Institutions and public purpose, and (vi) the weaker sections of the people and industrial workers would get residential accommodation at cheaper cost. □

Reader's Forum on
Intergrated Rural Development

Yojana is happy to present readers' reaction to Dr. V.K.R.V. Rao's thesis on the concept of Integrated Approach to Rural Development as contained in his Sixteenth Convocation Address to the Indian Agricultural Research Institute. Excerpts of this address were published in Yojana of 15 February 1977 with an invitation to the readers to offer their considered comments on the suggestions made by Dr. Rao. Three replies have been received from academics and they are reproduced below. Yojana will be happy to publish more comments provided they are received before June 1, 1977.

A CONCEPTUAL FRAMEWORK FOR INDIA

P. N. CHOPRA

DR V.K.R.V. RAO, in his thought-provoking lecture (reported in Yojana February 15, 1977), has rightly questioned the realism and relevance of the currently popular concept of Integrated Rural Development in the present Indian context. He has made three very pertinent observations. (1) Development is an inter-disciplinary concept dealing with the increase in productivity as much as its distribution among the rural masses, (2) redistribution for social justice must not encourage non-viable production units; and (3) science and technology, which is at the centre of integrated development, is unable to ensure fair distribution of benefits of development to the rural poor unless there is a more equitable distribution of productive assets among rural families.

Development in India has been so far planned from above. Planning has by and large been a traffic of project proposals and resource allocation by the State governments and the Central ministries through the Planning Commission The State governments have been allocating the available developmental resources among different districts through various departments on an *ad hoc* basis. The main instrument of developmental effort at the block level has been the team of extension officers who have been striving to meet the felt needs of the people of the area through available funds. The result is a good deal of 'wastage' of scarce resources on the one hand and frustration among the rural people on the other. The Community Development Approach with which we had pinned great hopes proved ineffective largely due to the lack of a remarkably profitable new technology adaptable by all sections of the rural people. Even the seed-fertilizer revolution in case of a few grain crops could not percolate down to the small/marginal farmers due to the various physical and financial handicaps. The inequality of rural progress, both areally and sectionally, has necessitated the adoption of the integrated area approach

That development of natural and human resources is area-bound and can be effectively planned only at that level cannot be disputed. This is the essence of regional planning Resource development has a spatial dimension, Immobility of physical resources and their spatial distribution in quality and quantity are basic compulsions for decentralisation of planning for the area-level. In a country of sub-continental dimensions as India is there is so much of diversity of physical and climatic conditions that a blanket approach is bound to aggravate regional inequalities. This is mainly due to the inability of a centralised planning machinery to adopt an integrated view of the peculiar resource development problems in different areas. Not only this, in India the various State government departments have followed a segmented approach to development at the area level. The gap between plan promise and performance is much to be found in the area-level development programmes.

Integration of area-level plans is a basic necessity due to the fact that all developments have to be ultimately located somewhere in space. The spatial element in planning is the binding force behind all sectoral programmes. If planning is to have this spatial dimension incorporated within it, we must ensure three-fold integration in all programmes. One, integration of all activities connected with land-use. Call it spatial integration. Two, integration of the functions of different developmental agencies so that they think and act to solve area development problems collectively. This is better called institutional integration since this ensures consonance of objectives of development agencies Three, hierarchical integration.

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The planning function is a joint endeavour of a hierarchy of planning bodies – the area-level authority, the State Planning Board and the Planning Commission. Successful planning depends on the feed-back of information from lower to the higher authorities. Meaningful planning is possible only if there is hierarchical integration.

The three-fold integration of area development programmes can be achieved only through a systems approach. Every area presents a problem situation of its own type. A predominently industrial-urban area represents a system quite different from the system of an agricultural resource rural-dominated area. The boundary of an area for development purposes shall be determined by the delimitation of the area as a functioning system. A system consists of a nucleus and its elements or parts which are interrelated and which function to variously fulfil the objectives of the system as a whole. Problem areas have a nucleus or centre at which the functional efficiency of the system elements is reflected It is like the heart in human body system, parts are like the limbs A poorly functioning system is loosely integrated and gets paralysed at the slightest jolt. A well-integrated system has the vitality to withstand exogenous shocks and contains the adaptive mechanism for change in environment. In the language of systems analysis, it has the necessary feedback mechanism provided within itself. A region has its hierarchy of cities or functioning nodes or nuclii. The character of the cities reflects in ample measure the nature of the region as a system The subregions in a homogeneous area are like the body-limbs of the region having distinct functions depending of the nature of organisation of the region as a system.

It is possible to illustrate the aptness of the systems approach to area development through a concrete example. Take the case of the sub-montane area in Punjab. This area has a distinct personality of its own being characterised by undulating yet slopy relief, loose textured, sandy-gravely soil, erratically-aligned-and-distributed underlying rocks, some pervious and others impervious. It is a small watershed with poorly-organised drainage system in the form of numerous 'choes' or seasonal hill-torrents carrying siltladen waters only during the monsoons. The area stands divided distinctly into three parts: (1) The uplands called the 'Kandi' area-the montane edge from where most of the 'choes' originate. It is dissected by gullies and khuds carved out by accelerated erosion after deforestation followed by indiscriminate sheep and cattle grazing during the last 125 years There is no possibility of digging shallow tubewells for irrigation here. Even drinking water scarcity is experienced during summer months before the monsoon. (2) The uneven, slopy midland where choes have deposited in a fanlike fashion their sands gravel and debris, called 'Rakkar' land this part of the area consists of relatively poorer soil with highly pervious material deficient in lime and phosphates as also organic matter. Only deep irrigation tubewells are a success here (3) The third part of the area is lower lands where most choes lose themselves either in the fields or join some live stream Shallow tube-wells can be easily bored and used In 'choe beds' water oozes out during winter so that Rabi crops can be grown here without irrigation. Hence the name 'Sirowal'. The three parts of the area are interlinked physically, geographically and economically. Accelerated erosion in the uplands and cultivation of the lower slopes has increased the fury of floods and pushed herdsmen uphill Wherever afforestation has taken place, water table has come up on lower lands, choe flooding and siltation is less Geographically, the area's towns are a classic example of 'parasitic' cities draining their hinterlands and having no generative growth for themselves. Level of economic activity in the towns depends directly on the performance of their hinterlands. The cities have remained stagnant despite normal growth of population in the area because there has been large-scale migration to the industrial towns on the G.T. Road and to foreign countries like U.K., Canada Dubai, Kuwait and other trucial states. The area has been a loosely-functioning, inefficiently managed system isolated from the rest of the State which has been the most progressive in India. The area has failed to absorb the seed-fertilizer revolution due to its disabilities

The systems approach to area development ensures integration of the area plan automatically. Within this framework, Dr. Rao's thesis of arriving at a viable holding, a viable village and a viable town is tantamount to determining models of micro units which can function effectively in the larger macro setting. The crux of the problem at present however is to open up the villagers and their holdings to receive the external stimuli, and allow human settlements to get consolidated along the roads to form a pattern. Provision of social services will then be most economical and socially satisfying. There is no one all India pattern. Each area has a system of human settlements which forms the foundation of integrated development. This is only one aspect of the problem of planning. There are other dimensions which are prior to this aspect in the sequence of development operations An area's development process can be described as interaction of three elements the natural resources, the human resources and the technology employed by the latter to use the former. Given the quantity and quality of natural resources, it is the quality of human resources and the technology employed which determine the level and pattern of area development. A more productive technology demands higher human skills as well as new capital assets In an overpopulated, less developed region, technological innovations can be the only source of growth and these must be diffused all over the region as quickly as the state resources allow. Every technology has its cultural environment and institutions must change along with technology. Technology and institutions must match the resource endowment of the region. Where the three are not 'matching', there are problems of technology transfer as and when it is available. These problems can be minimised if we think within a systems framework. Area development is improving a system to function better. In so far as technology is the key factor in the process, the present stress on science and technology is understandable □

A Re-Thinking on Rural Development

AN EXPERIENCE OF NORTH WEST BIHAR

DR. H. BHAKTA

THE GOVERNMENT OF India have to start pilot projects for integrated rural development in twenty districts, one in each State with the accent on the full utilisation of science and technology for solving the problems of rural development. From the administrative angle Professor V.K.R.V. Rao is in favour of re-thinking in the meaning of integrated rural development and factors of selection of unit of development (Yojana, 15-28, February, 1977). However, the empirical study of Agrarian Relations and Development in North-West Bihar (My unpublished Ph.D, Thesis, Patna University, Patna, 1976) prompt me to say that for the solution of the problems of rural development, the analysis of mode of production in its historical perspective mainly in terms of the system of production can not be overlooked. Hence thinking ahead on "a rethinking" is called for.

Scope of Integrated Rural Development

We know that development is a continuous process which concerns not only "the provisions of opportunities, and their actual utilisation" but also the creation of opportunities for self-propelling continuous development of productive resources – natural and human. The cropwise, villagewise and classwise analysis of agrarian economy of North-West Bihar reveals that it is not developing rapidly either because there is the system of production for use value or there is lack of market orientation or there is weak market orientation In the absence of strong market motivation of production we may achieve certain level of development but self-propelling continuous development will be far away. Marx also says "in any given economic formation of society where not the exchange value but the use value or product predominates, surplus labour will be limited, and that no boundless thirst for surplus labour arises from the nature of production itself" (Marx, Capital, Vol 1 p 260 Kerr edition). Marshall hints indirectly at the same point when he opines that large scale production is limited by the extent of market. Actually, development of human and natural resources covers both the production and exchange aspects of activities. It is in the process of exchange that the conditions of rapid development – markets for the means of production and means of consumption – develop. Hence, the pilot projects for integrated rural development will be incomplete without special consideration of exchange activities i.e. how the goods and services are exchanged in the rural economy. This has great bearing on the mode of production and development mainly through the distribution of income and assets in the society

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Factors of Unit of Development

Professor Rao is perfectly right in ascertaining the census village as revenue village. unsuitable for the unit of development. But he accepts population and area – the traditional and static factors for the norms of that unit. No doubt these are necessary but not sufficient ones Village having the same area and population may be at different levels of mode of production with varying degrees of market motivation. Measures adopted for a village where the system of production for use value predominates will not be suitable for the village where the system of production for market has emerged. Capitalist measures may help development only in a post-feudal setup where market orientation of production is strong. In other cases anti-feudal measures are also required to break the bottle neck of the system of production for use value. Thus, in the existing transitional stage of development of the mode of production the production for use value/exchange value must be taken into consideration while selecting a unit of development.

Further, villages are not an isolated ones They have close socio-economic relations with adjoining villages. There are instances where the landlord and the cultivator get all their labour power required from another villages, while in another instance, villagers have all their land situated in another village Such situations influence productivity and development greatly. Therefore, while considering population and area for the selection of development unit the socio-economic relations with adjoining villages should not be overlooked.

Besides, the socio-economic structure differs from village to village. Landlords, cultivators, small and marginal farmers and landless labourers have varying proportions in the class structure influencing productivity and development differently through the distribution of benefits of development. Therefore, the village, a unit of development should comprise the class structure of national character.

Further Professor Rao is not in favour of alloting little land to landless labourers on the ground that it is "a disincentive to the motivation to initiate projects for non-agricultural activity" and in some areas, the earnings of agricultural labourers are higher than the earnings of sub-marginal farmers. This may be true in the subsistence economy of the system of production for use value. In the exchange value system of production, sub-marginal farmers may shift their agricultural resources including land to the production of commodities like live stock, vegetables etc. for market which would require much more

labour than food grains. Here, earnings are also higher. On the other hand, this will reduce the pressure of employment on non-agricultural activities. In other words, the pilot projects for rural development should not come with the measures to abolish small farmers but with measures to strengthen their economic position by inducing them to produce commodities like live stock, vegetable etc. for market.

As regards the nature of development of science and technology I would like to say that these should be such that their benefits should go to the labourers. Perhaps, by labour intensive technology, Professor Rao means this. This will raise the productivity leading to higher earnings of labourers and also of full utilisation of resources under the system free from exploitation. For all this exchange activities of rural life require regulation and control. Because, it is in the process of exchange that the benefits of development of science and technology can be regulated in favour of labourers.

The above analysis suggests that Professor Rao's approach requires thinking ahead in the light of the mode of production, stage of development, system of production, socio-economic structure of the unit, socio-economic relations with adjoining villages, diversification of agricultural resources of mainly small farmers and the distribution of benefits of technological development in favour of labourers. However, machinery are required to review the projects; to modify them like community development projects, to drop them like cooperative farming and to encourage new approaches like commercial bank credit. □

INTEGRATED AREA DEVELOPMENT PROGRAMME

S N. MANE

BOTH IN THE pre-Independence and the post-Independence periods a debate on poverty in India has remained more or less an academic exercise. In a way Maharashtra can legitimately claim credit for starting in April 1965 the pioneering Integrated Area Development Programme initially in eleven villages of Tasgaon Taluka of Sangli district. It was mainly confined to the small and marginal farmers. Its principal object was to make the small and marginal farmers viable units so that they can compete favourably with the big and influential farmers The programme grew in its range and magnitude, and since July 1969 it came alternatively to be known as Pilot employment Guarantee Scheme. As the scheme was extended to the landless labourers its emphasis was shifted from viability principle to the employment guarantee. It is known as 'Page Scheme' because Shri V.S. Page was one of its promoters. On March 10,1975, the Finance Minister, while presenting the budget for 1975-76, proposed certain new taxes with a view to financing the new Rural Employment Guarantee Scheme which is an offshoot of the Integrated Area Development Programme. It is our experience that these programmes and schemes, though necessary, are not sufficient conditions of the integrated rural development. This has been revealed by a number of Evaluation Reports' and critical articles. The Evaluation Reports including the one by Shri Page himself have concluded that the experience of the scheme is not only unsatisfactory but it is also disappointing. Almost all the reports have demonstrated that 'the professional politicians' who act as the middlemen in the development programmes are largely responsible for the unsatisfactory working of the scheme.

It is in this context that Dr Rao's thesis on Integrated Approach to Rural Development rightly deserves to be acclaimed as a challenge and not an alibi of rural poverty

The merit of Dr Rao's thesis is not an extension in the conceptual kit from the narrow confines of a numerical capital to the human capital or 'an investment in man' as Prof. Myrdal calls it, but his plea for restructuring and regrouping the economically non-viable villages into viable ones His argument assumes an added significance when one observes that more than 50 per cent of the village Panchayats have each less than Rs. 1000 as their annual income. Similarly nearly 33 per cent of the village societies are without full-time secretaries. The school, society and the panchayat in every village or in a group of villages are supposed to be the effective agents of socio-economic development at the grass-root. But the actual of functioning of these grass-root institutions has a different story to tell. There are a number of villages which cannot afford to have adequate school buildings of their own to accommodate all the pupils at one place. The principal reason among other things is the paucity of village funds. A large majority of villages are economically non-viable units. The restructuring and the re-grouping of such villages no doubt possess a formidable problem. But much of the dreadfulness can be attributed to what Prof. Myrdal calls 'the lack of political will' or 'the soft state' that India is

With these remarks on the most radical aspect of the plea of Dr. Rao's thesis, I would like to offer my comments on two controversial issues in his thesis.

On the redistribution of surplus land to the landless Dr. Rao has his own reservations He cautions that the redistribution of surplus land surfaces among the landless labourers would multiply the number of the under-employed. Here Dr. Rao subscribes to the view that Dr. Minhas held in 1970. Dr. Minhas stated : ".... the purpose of land redistribution is not to turn non-farmers into farmers but only to improve the position of the small cultivating operators[2]." Even Dr. Gadgil in his capacity as the Dy. Chairman of the Planning Commission expressed his own doubt in these worlds: "Here, the basic problem is not that of bringing about larger redistribution of land surface but that of combining land surfaces operated by vast number of small holders into units suitable for efficient cultivation[3]." Pursuant to this

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argument, Dr. Rao raised a pertinent question and anticipates the expected answer He says: "Would it not be desirable to use any land available for redistribution to increase the size of the holdings of these marginal and sub-marginal farmers rather than add to their number by giving lands to the landless labourers"? (p 14) Thus his Integrated Approach favours the principle of efficiency and fears the principle of equity.

Dr. Rao justifies the redistribution of land to the marginal and submarginal farmers with a view to increasing the size of holdings and decreasing the number of the underemployed. But it would be unrealistic and doctrinaire not to take due notice of the fact that an increase in the size of holdings, beyond a certain point, paves the way for capitalist farming which would, by its very nature, swell the army of the rural proletariat This unhealthy tendency of increasing concentration of land ownership in a few farming households has been confined in the recently published Agricultural Census Report. Dr. Rao makes a reference to this unhealthy tendency as revealed in the Report but he does not take a serious note of it because he is worried more about the underemployed than about the rural proletariat.

The capitalist farming which, by and large, is the result of increasing concentration of land-ownership in a few farming households, is not justified for the following three reasons Firstly, "the rich cultivators in a country which is not self-sufficient in foodgrains, would first of all tend to hoard their grain in years of good crop outturn and secondly would try to restrict the production of foodgrains to maintain and increase prices by reducing the areas sown[4]." Secondly, it tends to swell the army of the rural proletariat in place of the peasant-proprietors Thirdly and more significantly in the present context, the myth that large scale farming means almost invariably a higher output is being more widely exploded by empirical testing This brings us to the second controversial issue in Dr Rao's thesis

Under Dr. Rao's Integrated Approach the landless labourers are not to receive benefits of the redistribution of the surplus land. For them Dr. Rao suggests the "programmes of full-time employment or self-employment activity in the non-agricultural field that would speed up progress of industrialisation (p. 14).

Here Dr. Rao is not perfectly clear If by non-agricultural field he means siphoning off the surplus labourers to such projects as building the roads, digging the wells, afforestation soil-conservation, irrigation and drainage, it would create more problems than it would try to solve Here Dr Rao comes closer or under the influence of the Nurkse-Lewis Model which is not relevant to Indian conditions Firstly, it fails to view the problem of surplus labour from the micro-economic angle Hence it does not determine exactly who and how many of the surplus labourers are to be transferred away from agriculture and to the non-agricultural field Secondly, the model fails to distinguish between 'the seasonable surplus and the removable surplus[5].' Thirdly, if by the non-agricultural field Dr. Rao means the organised sector the practical applicability of the model under Indian conditions has been disputed by some economists. For example, Dr. Khusro in his thesis 'Economic Development with No Population Transfer' has argued against the Nurkse-Lewis Model He states " Only when the demand for labour in the modern sector exceeds the supply of labour from all these sources does a net shift of workers from agricultural sector becomes economically justified Otherwise the result is only an addition to the pool of unemployed in the modern sector[6]." With the saving and investment rates remaining more or less stagnant on the one hand, and an accelerating rate of population growth on the other, the modern sector cannot be in a position to fully and gainfully absorb surplus labour at least for some time to come.

Dr. Rao, as we observed above, has voted for the underemployed and against the rural proletariat But here the choice is not so much between big and small size holdings as it is between higher and lower agricultural output. The Farm Management Studies conducted by the Government of India and the Field Surveys undertaken by experts like Bhattacharya and Saini (1972) and Krishna Bharadwaj (1974) have demonstrated 'the inverse relation between size of holding and productivity ' These studies have explained the inverse relation on two grounds, (a) smaller farms are more fertile, and (b) smaller farms have some technological advantages due to diseconomics of scale. In other words, a relatively small-size farm absorbs a family labour more intensively. Experts like A. Rudra and A. Sen have strongly doubted the observed paradox of the inverser elation between size of holds ing and out put But under condition-of high irrigation intensity and the individual crop grown within a village the inverse relation is widely accepted. Before the inverse relationship is universaly established the need for more reliable evidence relating to the heterogeneity in agriculture is acutely felt. In the words of Prof Amartya Sen, "It would thus appear that the labour-cost based explanation has not so far been falsified by any of the production function studies presented. It must, however, also be recorded that sufficient empirical testing of the explanation has not been done to enable us to confirm or reject the hypothesis with any confidence[7]. This is the great challenge to be squarely faced by the social scientists

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THE CULTURAL

M. S. SUBBULAKSHMI sings in Shillong and Ali Akbar Khan plays in Shimoga; Yamini Krishnamurty dances in Vadodara or Tejpur; Badal Sircar is translated and staged in Pune and Vijay Tendulkar in Bangalore; Kerala's Soman shows his oils' in Delhi; Kogga Kamath enthrals Delhi audiences with his Yakshagana puppet show and, young film institute graduate George shows his experimental work with great aplomb

This sums up the, cultural scene today. Neither religion nor language—it's culture which has promoted integration; traditionalism is despised as obscurantism, and tradition is fostered. The art traditions of a region are no more confined to itself; the literary masterpieces in a language are no more shut off from others in the country This is what we have accomplished in the past few years.

Art is the reflection of the vitality and culture of a people. Seekers of knowledge and lovers of art among the travellers to this country in the remote past carried back with them the message of Indian wisdom and souvenirs of Indian art. Indeed, art had been part of every day life of the people – whatever article they used in their work, worship and recreation and the very way they lived and performed their various duties reflected their innate sense of beauty When people suffer from political or social exhaustion, their life loses verve and vigour and their art tradition becomes sluggish When the British established the Raj in the country, one of the first things they did to curb national pride was to disengage people from their art consciousness The educational system deliberately ignored promotion of art The generations which went to schools and colleges and served the alien administration in the 19th and part of the 20th centuries were thus isolated from the art traditions of the country.

When the country became independent, a major task for the leadership was to reinculcate among the people national consciousness for speedy, total reconstruction. As man reveals himself to himself through art and makes it the vehicle of expression of the desires, urges, hopes and dreams, in his struggle to make life worth living, independent India set out on a journey to rediscover itself culturally

In 1953 the Sangeet Natak Akademi was constituted for the promotion of music dance and drama, in the following year came the two other academies – the Sahitya Akademi and the Lalit Kala Akademi to work actively for the development of Indian letters and for the promotion of visual and plastic arts respectively Nurtured under the guidance of great thinker-writers and connoisseurs of art Jawaharlal

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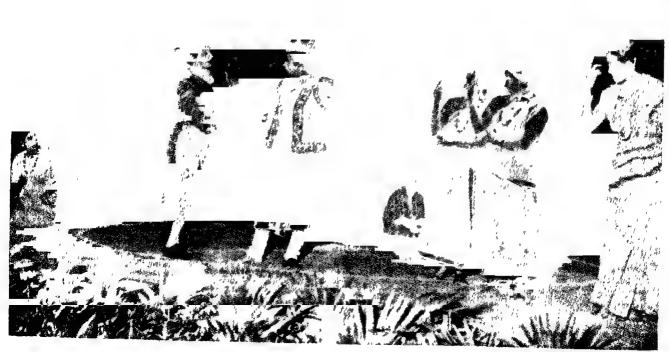
A scene from the 'Discovery of India' presented by Indian Stage, New Delhi.

SCENE — *A Survey*

V. PATANJALI

Nehru, Maulana Abul Kalam Azad and Sarvepalli Radhakrishnan, and the three academies not only promoted existing talent but also encouraged young enthusiasts and helped them to find their feet.

Art being at once education, entertainment and recreation helps to create the conscience of the age and whatever is done to promote art must be done in a systematic and planned way within the overall framework of national reconstruction. At the suggestion of the then chairman of the Sangeet Natak Akademi a scheme was evolved in 1966 to preserve our old folk songs, folk dance forms and old costumes Thus began the extensive survey and documentation of rare forms of traditional performing arts. Teams of research scholars dug into old chronicles and records and talked to connoisseurs and practitioners of dying art forms and prepared an inventory of indigenous entertainment forms. Following this, the teams reached many forgotten centres of art, interviewed the 'rustic entertainers', recorded their impressions and filmed them in action.

Many unique art forms which were languishing for want of patronage have been given a new lease of life Ageing gurus and ustads have been given financial and other assistance to continue with their art tradition.
They have been persuaded to teach the arts to young enthusiasts And now performances of traditional arts have become a regular feature during cultural seasons.

Among the arts saved from extinction by these enterprising and devoted research teams are Ravan Chhaya, the shadow puppet play of Dhenkanal in Orissa; Pava Koothu, the glove puppet drama of the Palghat region in Kerala; Bolan, the operatic drama, and Patua, the ballad singing tradition, of Murshidabad in Bengal; Ojha Pali and Sukh Nani, the group singing forms of Darang district in Assam and ; Oggu Katha, the vigorous ballad-style drama of the Telengana region in Andhra Pradesh. And many more folk art forms have been discovered and preserved for posterity

Alongside, the existing folk art styles have been developed and promoted Noted exponents are awarded prizes and honoured annually; institutes for training are given grants not only for teaching but also for purchase of eqipment and construction of buildings. Khayal of Rajasthan, Bhavani of Gujarat, Bhand of Kashmir, Jatra of Bengal. Ram Lila of Uttar Pradesh, Burra Katha of Andhra, Dashavatara of Goa, Yakshagana of Karnataka, Ankiya Nat of Assam, Therukoothu of Tamil Nadu, Tamasha of Maharashtra – all these regional folk entertainment forms have become household names all over the country largely owing to the encouragement

A scene from 'Kakana Kote' a Kannada drama staged in the capital on 20 3.76 by 'NATARANGA' of Banglore
Photo : T. Kasi Nath

Kathakali dance drama

given by the State not only for sustenance but also for promotion through arranging inter-state cultural exchange programmes

Scientific spirit with an inter-disciplinary approach for the study of problems of music is perhaps the most significant aspect of our musical scene today. How did sound develop into notes? What is the relation between the abstract concept of Shruti and its viable aural form? Can we seek to expand its scope? What is the psycheacoustic basis of our music? Is the microphone a boon or a curse for the musicians? How can we improve on the tonal qualities of our musical instruments? Many are the vexing problems for a thinking artiste and to seek solutions he has to work in collaboration with musicologists, psychologists, physicists and technicians. The Sangeet Natak Akademi has set up an acoustics laboratory in New Delhi where Dr Chaitanya Deva conducts research into many of these problems The Akademi has organised a number of seminars and workshops to probe the origin and development of musical scales, psychological responses to Raga structures and computerisation of Indian music.

One interesting experiment conducted by the Speech Group of the Computer section of the Tata Institute of Fundamental Research (Bombay) at the recent Akademi-sponsored workshop at Bangalore, was to use the computer as a musical instrument – as a South Indian Veena. The experiment consisted of taping veena music under conditions of minimal ambient noise, making data collection on a sonograph and carrying out music synthesis on a computer One artiste played some samples of synthesised music, a composition of Purandara dasa and a Jatiswaram in the raga Bilahari, and the original to show that the two were quite close and that the quality of music produced by the computer depended very much on the data supplied to it of any musical piece. The purpose of this experiment in real terms is to seek to evolve a sound notational system for Indian music

As a result of all this activity, there is now a basic change in the method of thinking about music and problems connected with the cultivation and propagation of music The Akademi encourages research in music by sanctioning grants to musical organisations and academic institutions. Some Indian universities have recently introduced new courses in science of music. Musicians and makers of musical instruments have been constantly trying to improve and innovate on the structure of instruments.

Talking of the general musical scene, there has been quantitative as well as qualitative improvement. There has been a phenomenal increase in the number of institutions devoted to fostering music and music circles and sabhas Music loving public has been growing, and as more teachers are trained increasing number of singers and instrumentalists are seen today

The advent of an industrial society, growth of mass audience, progress of technology, suburban living, pressure of time and other factors have influenced musical styles and their evaluation considerably The emphasis shifted from the casual and the leisurely to the prompt and the precise No more waiting endlessly for an ending fate. A musician now faces the challenge to distill his best within a specified time –which makes his own critic – and present the cream of his musical intellect It is unrealistic to say that restrictions of time have crippled the art of music and that it violates tradition. How is tradition violated by the presentation of a Raga in its pure, neat and crisp form? Has the epic novel suffered by the evolution of short story?

Another welcome development has been the crumbling of the old, rigid gharana styles which impeded qualitative growth of music A catholic and cosmopolitan outlook in musical values is what is discernible today among both performers and listeners

Music is the most abstract yet most popular art. The National Programme of Music broadcast over the AIR network and the annual Sangeet Sammelans draw vast audiences Young musicians are encouraged by awarding prizes annually and by giving them opportunity to exhibit their artistry over the radio Nearly 44 per cent of AIR's total broadcasting time is allotted to featuring music through its various channels.

The essential melodic character of Indian music notwithstanding, attempts are made to harmonize and orchestrate Indian music by AIR Vadya Vrinda. That the unit has attained considerable success

A scene from Ram Lila presented by Bharatiya Kala Kendra, New Delhi

was evident when two of its entries of orchestral compositions won awards at the Asian Broadcasting Union competitions recently.

The general enthusiasm for music among people has prompted some of the wellknown commercial houses to enter the field. The founding of institutions for the promotion and study of music and other performing arts and organising festivals of music and dance are among the cultural activities taken up by the Tatas, Bata Shoe Company, Delhi Cloth Mills, Indian Tobacco Company and others.

And any reference to qualitative improvement of Indian music must take into account the contribution made by Pandit Ravi Shankar, the sitar maestro, who was also instrumental in promoting Indian music abroad He was one of the earliest to realise that it would be disastrous to think that a Sunday evening concert-goer is no different from the audiences at all-night mehfils. The whole approach had to be different, without the qualitative content of music being different. He took a hint from the "pure and orthodox Karnatak style" and began attempting crisp, short duration expositions. It was again Ravi Shankar who insisted on punctuality, discipline and decorum both at concerts and classes

Summing up, it can be said that Indian music has never had it so good. Performers today enjoy more freedom, greater leeway and higher remuneration and the listeners a much more varied fare of qualitative music than ever before.

Dance Scene

How does classical dance steeped in the lore of the land cater to the changing secio-economic setting? How long more do dance lovers have to witness the same items repeated *ad naseam*? The test of true art is its dynamism, creativity and adaptability both in form and content. Even Bharata, the author of Natya Shastra, says in no uncertain terms that there is nothing like eternal values in art and that art has to subserve the interests of the society which sustains it. Then, do our dancers lack imagination, or support?

When the Akademi began extending support, the creativity of our dancers also began to blossom. The assistance from several state agencies has helped artistes to expand and widen their repertoire to making dance more comprehensible to the general public, and to make the oldest dance form a vehicle of expression of a most modern idea, most pressing contemporary problem The name of Mrinalini Sarabhai comes up first. She has been experimenting with Indian dance forms to explore new dimensions of mimetic utterance. *Manushya, Song of Creation, Ballet on Death* are some of the ballets choreographed by her. Trained basically in the Kathakali and Bharata Natyam techniques, she blends most appropriate features of all forms giving the performance a feel of contemporary western idiom. In *Manushya*, she depicts the journey of man from birth to death – his hopes, his dreams, his aspirations, his struggles and his joys dotting the physical sojourn. The mystic poem of Rig Veda is rendered in dramatic movement in *Song of Creation* which is perhaps the first abstract dance composition in India. The third work shows how obsessed Mrinalani has been with the problem of suicides among the women of Saurashtra. The variations of rhythm on the typical Kerala drum *idakka* portray the interaction of the community's cruelty and the woman's emotion through four seasons of her life. For the woman death is not the absence of life, it is the absence of love.

Why I described in detail the work of Mrinalini and Darpana team is that their work sums up the new spirit of experimentation both in content and form one comes across today. Jawaharlal Nehru's *Discovery of India* has been attempted as a ballet by two or three groups, all choreographed in what is knov as the Oriental idiom which seems be popular with many choreogı phers. Sachin Shankar, Narend Sharma, Prabhat Ganguly a others. Rukmini Devi contin her work in the chaste Bhara Natyam idiom and confines hers largely to puranic and devotio themes while Birju Maharaj happy with his Kathak style co positions recapturing the glory Avadhetal The masters of Katl kali, however, ventured into n mythologicals like, *Kristu Charit* and *Sohrab and Rustom*. It n take some time for the traditio Kathakali audiences to acc

Chhau dancer from Seraikella, Orissa

Jhaveri Sisters & Group in 'MAHARAS', Manipuri dance

these novel ideas; the cosmopolitan gatherings outside the home of the dance did welcome the departure.

As in the case of music, scholarships for young enthusiasts by the State have helped both students and the teachers who receive a certain amount of the stipened money as tution fee. Besides, institutions devoted to dance also receive grants to construct buildings, conduct classes, present special dance features and ballets. The Akademi conducts two institutes for training in Kathak and Manipuri, the Kathak Kendra in New Delhi and the Jawaharlal Nehru Manipuri Dance Academy in Imphal and assists other well-known organisations like, the Kalakshetra, Madras, the Kerala Kalamandalam, Cheruthuruthy, Darpana, Ahmedabad, Siddhendra Kalakshetram, Kuchipudi and the Nritya Kala Parishad, Bhubaneswar

Dance is the most popular performing art, it appeals to visual and aural emotions A number of schools have sprung up in cities and towns for teaching dance However, there is the gap in the comprehension of the meaning and import of various dance items at a Bharata Natyam recital which are generally in Telugu, Kannada or Tamil. Various innovations have been tried out to circumvent this problem. One has been to attempt Meera Bhajans for dance rendering.

A Marathi-speaking teacher of Bharata Natyam from Bombay was encouraged by the state government to research into the works of rulers of Thanjavur. He brought out a whole set of compositions in Marathi set to Karnataka melodies by Shahaji, the 19th century Maharashtrian ruler, meant for Bharata Natyam repertory. His student, Sucheta Bhide, presented an evening of Bharata Natyam with Marathi lyrics. Another innovation attempted recently was with renderings in Hindi of the original lyrics in Telugu or Kannada set to Hindustani ragas and talas. An experienced Gujarati-speaking teacher of Bharata Natyam tried this with the help of the noted Sarangi player, Pandit Ram Narayan.

An important feature of the dance scene is the emergence on the national stage of the two scintillating dance styles of Odissi and Kuchipudi. Their clientele is growing; it is too early to expect any innovations in these dance forms. When people crave for a change in the repertoire, artistes will have to rise to the occasion

Veena player Narayanaswamy

Kathak dancer, Birju Maharaj

Yehudi Menuhin and Ravi Shankar playing together

Theatre Scene

In the Indian cultural tradition, theatre occupies a pivotal place for around it have grown all other forms of plastic and performing arts. The Natya Shastra boasts that "there is no knowledge, no craft, no lore, no art, no technique and no activity" beyond theatre If it is by the comprehensive art of theatre that a society is judged at the bar of history, India emerges in flying colours for it is in this land that man's imagination and creativity in play-writing reached the pinnacle

However, the classical theatre 'suffered from certain inhibitions' which makes it obsolete in the modern context. The weight of tradition did not allow Indian theatre to keep pace with times either in content or form, as the *lokanucharita* aspect was ignored by later playwrights When the Indian playwrights felt the fresh breeze of contemporaneity from outside, they were thrilled and began to react, though in an immature way. They required intellectual and technical guidance with a firm indigenous base. Several schools and workshops were conducted to help them The National School of Drama, set up by the Sangeet Natak Akademi, was the most important institution. Systematic training in theory and practice of drama in its various departments is given to theatre enthusiasts. Many plays written and produced by the National School have become trend setters in Indian theatre.

The School has been rendering into Hindi many important contemporary plays from regional languages and presenting them with the object of creating an awareness of contemporaneity among all those connected with theatre. The School also introduce major folk drama forms – indigenous as well as foreign. Karnataka's folk theatre, Yakshagana, and the Japanese Kabuki drama were presented in Hindi with the assistance of experts concerned.

Experimentation in play construction as well as presentation technique is the *in* thing now. Our playwrights turn the spotlight on the dark recesses of human mind and heart to attempt intimate analyses of subjective responses in the context of complex modern living And psychic subjects demand somewhat psychedelic stage treatment Indeed, the whole philosophy of working on a play either at the desk or on the stage has undergone great change.

What is more significant is that a powerful play written in Bengali or Marathi, Kannada or Tamil is no more confined to regional appreciation only; nearly all major works of drama in regional languages have been rendered into Hindi and other languages and staged using lively, authentic and abiding production techniques.

Yamini Krishnamurty, in a Bharata Natyam pose.

A scene from Jaishankar Prasad's famous poem 'Kamayani' produced by Anamika, Calcutta

Kogga Kamath and his troupe presenting Yakshagana puppet play

The exploitation of folk theatre idiom for modern dramatic expression is another significant development. Playwrights of eminence such as Badal Sircar, Mohit Chattopadhyaya, Laxminarayan Lal, Dharmavir Bharati, Girish Karnad, Vijay Tendulkar and Habib Tanvir have employed folk elements with considerable success. Habib Tanvir's greatest contribution to contemporary theatre is his introduction of folk balladists as theatre artistes. Puna Ram and his group from Chattisgarh in Madhya Pradesh are now theatre celebrities in Delhi having successfully staged two or three performances.

'Theatre-on-wheels' is another novel innovation of Habib Tanvir. The mobile theatre consisted of a stage mounted on a motor truck which moved from one street corner to another presenting rollicking skits on the political situation in the country.

Students and youth have always sustained the theatre movement with great enthusiasm and dedication and with whatever intellectual or material resources they could command. In the new cultural climate, they are exposed to contemporary styles of play writing and production. And whatever is attempted intelligently has the backing of state agencies. Theatre festivals are organised each year where artistic achievement is rewarded and recognised

Time was when grave fears were expressed about the future of art tradition in the country owing on the one hand to languishing patronage and popularity of technology-based entertainment on the other. It is a miracle indeed that the situation has changed to the advantage of the indigenous arts which have gained strength and prestige and widened their appeal. I remember what the noted Marathi playwright producer P, L. Deshpande has said in one of his works. A Bombay art lover who wishes to witness a performance of *tamasha*, goes all the way to a far village, which is a traditional centre of the art form, only to be told that all the best troups had migrated to the city.

Plastic and Visual arts

The two Triennales of contemporary world art held in 1968 and 1971 provided a great opportunity to Indian artists to study world art trends.

A scene from *Dhola maru*, A dance drama produced by the Bhartiya Lok Kala Mandal, Udaipur

A scene from Ramayana ballet presented by Little Ballet Troup.

The growth of art galleries and the increase in art exhibitions is phenomenal which are indicators of the swelling numbers of painters and sculptors as also art lovers. The Lalit Kala Akademi sponsors national exhibition of art and operates the Artists' Aid Fund for the benefit of indigent artists. A ten per cent cut from the sale proceeds of paintings is pooled into the Fund The Akademi organises artists' camps where members meet, work and exchange views.

The unique artists' village Cholamandal near Madras where artists live and work in a community is an important development in the field of art. The Akademi promotes such artists' colonies.

The artist cannot be an island unto himself; he has to react and respond to the call of the hour, he has to play his role as a leader of public opinion. What ever he creates must mirror the social situation. During a calamity, during emergency the artist must help to foster the necessary emotional climate And our artists have not lagged behind; they roused the conscience of the nation in times of stress and strain.

Film has emerged as an important medium of cultural advancement. The trend of film making in the past few years has been towards increasing involvement in social affairs. The New Cinema pioneered by young film makers from the Film and Television Institute has done signal service in inculcating a sense of sanity among commercial film producers The film society movement has gained momentum and has been providing support to the parallel cinema. The national and international festivals of films have been instrumental in opening up new vistas of cinematic expression.

Having rediscovered itself Indian art has to jostle in the open with the art of other lands, but let us not forget those very wellknown words of Gandhiji: "I want the doors and windows of my house to allow the air of all cultures to blow and yet I do not want to be blown off my own feet " ☐

RRL Jammu

(*Contd from Page* 10)

worthy that complete sophisticated submerged fermentation plant of 4000 litre capacity has been designed, fabricated and installed by the laboratory engineers themselves. The heart of the plant is the fermenter, which is a highly complex unit requiring various key parameters to be controlled during the process for a prolonged period of time This laboratory is perhaps the first in India to undertake such a large fermentation plant on a turnkey basis.

Export of Know-How

—RRL Jammu has now entered the field of exporting its technical knowhow. In that connection laboratory technology is now being exploited for Indo-Burmese Scientific Collaboration Programme. The delsigning and fabrication of the plant-foi producing 3000 kgs of menthol per annum under this project has been done by the laboratory.

The laboratory has also successfully cultivated hops in Kashmir and Himachal Pradesh. A project is now being taken up on commercial basis, by many breweries and farmers in Kashmir and Himachal Pradesh under the supervision of the laboratory. Hops is used by breweries and India imports rupees one crore worth of hops annually

Laboratory has also done a lot of research in mushroom cultivation in trays and preparation of quality spawn Mushroom cultivation has become almost a household affair in Kashmir valley.

About two and a half years back the laboratory had started transfer of technology to industrialists and it has made an impressive progress. Whereas RRL earned Rs 85,000 for transfer of technology during 1974 the amount jumped to Rs 3.22 lakh during 1975 and increased still further to Rs 6.20 lakh during 1976. An interesting paradox to be remarked in this sphere is that whereas the earnings of the RRL on account of transfer of technology have increased remarkably during the last three years, the number of projects handled by it has not shown much variation. It was 27 in 1974, 31 in 1975 and was 32 in 1976. But what is more important is that laboratory has been taking up more and more important projects resulting in increase in its income.

Two other important projects taken up by the laboratory during the past two years pertain to industrial survy of Himachal Pradesh and a detailed study of the problems faced by small industries in J&K and the hlep that can be rendered by this or other national laboratories under the Council of Scientific and Industrial Research and spread of laboratory technology in the rural areas in these two states. ☐

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ULTIMA/H/50

Power Development in Kerala

C.N.P. NAIR
GEORGE VERGHESE

THE INSTALLED capacity of Kerala's Power system has increased from a meagre 28.5 M.W. in 1950-51 to 881.5 M.W. by 1976— a 31 fold increase in 25 years. This is an outstanding achievement of economic planning in Kerala.

The heavy monsoon and the rapidly falling terrain of the High Ranges of Kerala favour power generation in the region to a great extent. Practical limitations preclude the exploitation of the entire water resources for power development. It is estimated that the hydro-electric potential of the state is 2600 M W at 60 per cent load factor as against 40.000 M W for the country as a whole Load factor is the ratio of the average demand in a period, to the maximum/peak demand in the same period, expressed in percentage Of this, the State have tapped only about 20 per cent of the total potential so far

The establishment of a hydro-electric station at Pallivasal in 1940 marked the beginning of extensive power generation and supply in the State Prior to that only a few towns were electirfied, that too by small Thermal Stations. With the commencement of hydro-electric generation, these stations were abandoned one after another and the power system in the State registered significant progress.

At the beginning of the First Plan, Pallivasal was the only hydro-electric station in the State The transmission and distribution net work was small, but well planned, comprising 910 c. Kms. of 66 k.v lines, 1073 C. Kms. of 11 k.v. lines and 998 C Kms. of low tension lines The total number of consumers was only 28,119 in 1159 towns and villages and the per capita consumption 13 units. Though the Pallivasal station was started with an installed capacity of 13 5 M.W , by the beginning of the First Plan, its capacity had shot up to 28 5 MW.

Out of the total outlay of Rs. 270 million, for the First Plan, the allotment for power development was Rs 118·5 million and the actual expenditure was Rs 112·5 million only. The proposals were to augment the capacity of the Pallivasal Project and to take up new schemes (viz). Sengulam, Poringalkuthu 1st and 2nd stage and the Neriamangalam Project. The extension programme of the Pallivasal Project to boost up its capacity to 37·5 M W and the Sengulam Scheme (48 M.W installed capacity) were commissioned during the Plan itself. Thus, by the end of the Plan, the total installed capacity of the System was 85 5 M W. The transmission and distribution net work and the rural electrification schemes also showed progress during the plan period. The consumer number rose to 79,575 Because of all these the per capita consumption rose to 18 5 kwh

The Kerala State Electricity Board was formed during the Second Five Year Plan period. The total outlay for the State during this plan was Rs. 870 million. Out of this an amount of Rs 234 5 million was provided for power development and the actual expenditure was only Rs. 224 9 million In addition to the spill-over projects, the proposals were to take up the Panniar, Sholayar and Pamba Stage I schemes. Two units of 15 M W. each of the Poringalkuthu Project and the Neriamangalam First and Second stages were completed. Thus the installed capacity of the system rose to 14 75 M W The aim was to complete Panniar and Sholayar Projects also But due to the delay in getting technical sanction for Sholayar Project and foreign exchange relief for the Panniar Project, these were not completed. Though the generation of energy showed an increase of 66% during this period, the end of the plan witnessed a shortage of 6 M.W. in the firm capacity* as against the overall demand for power.

A major portion of the allotment for power was set apart for the expansion of transmission and distribution, and rural electrification. This plan period marked the beginning of 110 k.v. grid in the State Transmission and distribution net work showed fast increase during the period and as a result the number of consumers shot up to 1·75 lakhs and the per capita consumption to 30·10 Kwh.

Out of the total outlay of Rs 1700 million, an amount of Rs 435·6 million was earmarked for power development during the Third Plan Period. The actual expenditure was Rs 608·5 million. The programme of development was chalked with an eye on the long-term requirements of power. The physical programme was mainly the completion of the Panniar, Sholayar and Sabarigiri Projects. Kuttiadi Project was also taken up during this Plan.

The third Unit of the Neriamangalam station with an installed capacity of 15 M.W. and the Panniar Project with 30 M W. capacity were completed Thus the installed capacity of the system increased to 192·5 M W. Though the installed capacity increased by 45 M W., the firm capacity rose only by 4 M W. Hence the shortage was continuing throughout the Plan. The outstripped demand for power was partly met by purchasing it from the neighbouring state—Tamil Nadu. Generation of power increased from 582 million units to 842 m units and the per capita consumption to 45 units.

The allotment for transmission and distribution and rural electrification was Rs 55 million and Rs 40 million respectively, but the actual expendityre were Rs 76.4 million and Rs 23 3 million

The total expenditure for power development during the Annual Plan periods was Rs 418 8 million. During this period, the Sabarigiri and Sholayar Projects were commissioned. As a result, the installed capacity of the system rose to 546·5 M W. and the annual power generation reached 1623 m. units. The generating capacity of the system become safe and hence more attention could be diverted to transmission and distribution

During these periods, a crash programme on T & D was launched. This enabled to increase the number of consumers from 1·75 lahks to 3·87 lahks and the centres electrified from

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Dr. Nair and Mr Verghese belong to the Deptt. of Commerce and Management Studies, Calicut University

* Firm Capacity is the capacity of the power project to generate energy for 70% of the time in a year. This is calculated on the basis of the water availability

869 to 1119. The per capita consumption reached 66·9 Kwh.

The policy of the Government and the Board regarding power development in the Fourth Plan was to increase the generating capacity further, assuming that supply of cheap power will induce industrial development in the State. Out of the total plan outlay of Rs. 2584 million an amount of Rs 762·5 million (later revised to 3307·0 and 1138 1 million respectively) was allotted for power development. Actual expenditure was Rs. 1146 million. During this period the work of Kuttiadi Hydro-electric Project was completed raising the installed capacity of the system to 621·5 M.W. The aim was to complete Idikki Project too, but it could not be done. The proposal was to electrify all the 1573 villages in the State, but only 1375 were electrified owing to paucity of funds. The total number of consumers reached 7 84 lakhs and the per capita consumption was raised to 79 units.

The proposed outlay for power under the state sector, in the Fifth Plan was to the tune of Rs 1200 million. The strategy adopted for this plan also was to expand the generating capacity further. Two units of 130 M.W. each of the Idikki Project were completed and thus the installed capacity reached to 881.5 M.W.

From the above analysis, it is clear that a considerable portion of the total outlay was allotted for power development in each plan. It is also clear that, though there were pitfalls in achieving the programmed additions during the plans, there was considerable expansion in the generating capacity. But it should be remembered that the increase in the generating capacity alone is not sufficient.

The general duty assigned to the Board as per the Electricity (Supply) Act. 1948, is to promote the coordinated development of the generation, supply and distribution of electricity within the State, in the most efficient and economical manner. The Board, through which the planned activities are carried out, has succeeded in performing its duty as regards to generation, but can that be said in the case of supply and distribution?

It is true that Kerala is selling power to its neighbouring States, but at the same time it is unable to do justice to the demand at home. As per a statement made recently by the Minister for Electricity of the State, there were nearly 40.000 pending applications for supply of power in the State. The main reason for this as per the statements of the Board, is the shortage of funds and hence the lack of materials for the execution of the work.

Analysis of the various studies shows that the main reason for this state of affair is the insufficient attention given by the Board on transmission & distribution. The 'Energy Survey Committee of India, stated that the capital expenditure on transmission and distribution should be more or less equal to that of generation schemes. The Report of the One Man Enquiry Commission* on transmission and distribution of the K.S.E.B. clearly states that,

"In the Kerala Power system with a compact transmission scheme having close proximity to the power stations, the expenditure on the transmission portion would be comparatively low but the distribution works required are more or less the same as anywhere else. The cost of distribution required for the full utilisation of the power satisfactor will vary from 50 to 60 per ce of the capital expenditure of the corresponding generati schemes."

Till the formation of the Board 1757, the main attention of the G vernment was on the generation pr jects. The expenditure on gene tion schemes upto this period w Rs. 233.7 million whereas on T& schemes was only 15.5 millio During the II Plan this attitude w changed and the expenditure we Rs. 88.4 million and Rs. 100-5 million respectively. But aga from III Plan onwards, ma attention was diverted to the dev lopment of generating capacit Until the completion of the Sabarig Project in 1967-68, there was shor age of power in the state, so t high expenditure on generation ca be justified. With the commissio ing of this project, Kerala has b come and still continues as a surpl state for power. Even at this stag the Board and the Government a more interested in increasing t generating capacity further.

In short we can say that the T& network is to be enlarged furth in relation to that of generatio With the completion of Idikki v will be in a much better position an hence the attention can be diverte to T&D. This does not mean th the generation works are to be stop ed. Of course the generation has t be developed ahead of the deman because of the long gestatio period. But the allotment should b so made that by the completion o the Project work, the necessary wor for the transmission and distribu tion of the generated electricity als are completed. This will hel full utilisation of the generating capa city immediately on completion o the project work. □

(1) *Report of Enquiry by One Man Commission on Transmission & Distribution of the Kerala State Electricity Board* (*K.P.S. Nair, Report*) 1967.

TABLE
Progress of the Power System

	I Plan	II Plan	III Plan	Annual	IV Plan
Total outlay for the Plan	25.89	80 22	*182.31	144 37	330 70 (Revised)
Allotment for Power	11 85	23.45	43.56	47.11	113.81 (Revised)
Percentage of the allotment to the total outlay	45 73%	29 23	23.89	32.63	34 41%
Actual expenditure	10.60	21.92	60 85	41 88	114.60
Planned activity M W. Addition	105 5	81.00	331.5	75.0	390 0
Actual addition M W.	57 0	77 0	30.0	354.0	75 0
Total installed capacity	85.5	162 5	192.5	546.5	621.5
No. of courses/consumers	79,575	1,74,993	3,24,111	4,38,542	7,84,223
Towns & villages electrified Nos.	380	869	1080	1134	1375
Distribution Lines	3687	8899	14189	16952	25970
Per capita consumption (Kwh)	18.50	30.10	39.5	66.9	79.0

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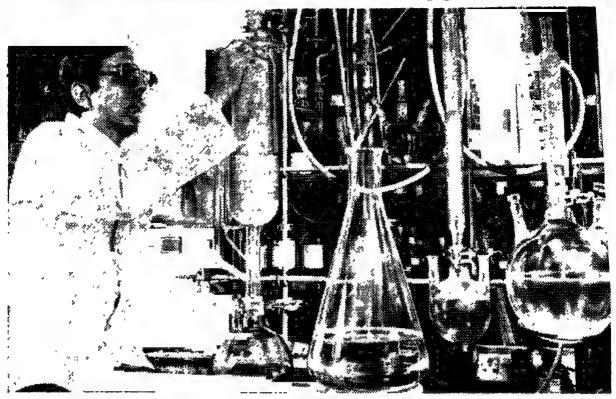
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YOUR OWN R&D IS THE KEY

IVAN IVANOV

A BUFFALO DRAGGING a wooden plough as the man behind it gazes at a jet in the sky.... A cliche, perhaps, but illustrative of how far apart technologically are the poles of our turbulent society.

Statistically, the developing countries account for only about two per cent of the world's total research and development (R&D) and produce only one per cent of original technological innovations Most of them are still in the stage of the first industrial revolution which western countries went through about two centuries ago.

This gap, in both time and extent, has serious implications. It often prevents technology from exploiting sources of growth in those countries, perpetuates their technological dependence, impedes efforts for industrialization and inhibits the economy as a whole, inducing a state of mind in which the Third World wonders where the next economic blow is going to fall

Accordingly, technological issues are now of increasing importance in the restructuring of international economic relations. Some major political decisions, intended to correct existing inequalities in this area, have already been made in the main international bodies

The history of modern technology shows, however, that any such gap cannot be bridged by a single attack For their proper implementation, these original political decisions have to be followed up by intensive and unremitting endeavour.

Not a solution

Until now, these international bodies have concentrated almost exclusively on transfer of technology from advanced to developing areas However important, this transfer as such is not the universal solution for eliminating technical backwardness.

It implies continuation to a large extent of current dependence on external technology. If so, the developing countries' bill for imported technology, now three to five billion dollars annually, may well be 20 to 30 times that by the end of the century.

Can the Third World afford such a burden? It seems obvious the future will require that imported technology be supplemented by a growing proportion of indigenous technology as the only sound basis for attaining those countries' industrialization goals set out in the Lima Declaration.

And what constitutes reliable local sources of technology where the Third World is concerned? A visionary like Erich von Daniken may persistently argue that the *Chariots of the Gods* are about to come once again and enrich our remote planet with a new generation of extra-terrestrial innovations and social values For human beings, however–leaving science fiction aside-indigenous technology comes only by strengthening national technological capacity. This means developing countries must invest enough "seed money" in their domestic R&D infrastructure.

Such a strengthening is deserving of at least the same priority in both national and international programmes as is now attached to the much-publicized transfer.

Soviet experience

The proof of this is the experience of my own country. Sixty years ago. just after the Revolution, it was like the contemporary world on a smaller scale. The relatively advanced centre was surrounded by vast poor areas (Central Asia, Siberia, Far East and North, even the Caucasus) possessing practic no other "technology" than nat handicrafts

So, simultaneously with the tra fer of technology from the cent numerous and determined effo were made to establish universit in the capital of every Soviet public and to provide R&D a training facilities. Local academ of science were among the fi agencies set up next to local gove ments.

Today, these former technolo cal "outskrits" produce about per cent of innovations and 30 p cent of our industrial expor Above all, being indigenous, t technology has really been dire ed to their specific developme goals. This is why, at UNCTA IV in Nairobi last year, our deleg tion fully supported the resoluti on "strengthening the technologic capacity of developing countries This recommends that technolo planning be an integral part national development.

It may, of course, be argued th imported technology is now necessity for all countries, how ever big they are, because of th ever-growing international divisio of labour in the R&D area. It i true that, by its nature, moder science is an international pheno menon and it would be unwise fo any country to shut itself off fro outside developments.

In fact only two countries, th United States and Switzerland, ar permanent net exporters of techno logy. We in the USSR, while prou of the fact that we have about quarter of the world's scientists do not forget that the other thre quarters are beyond our frontiers

This, however, in no way di minishes the crucial importance o our national technological capacity With such a base, we are well placed, in importing technology, to make our own choice and to use imports only for supplementing our indigenous R&D output, In commercial terms, this means a healthy ability to reduce the quantity of imported technology and the technical assistance for making it operative, to increase the "local content" in engineering, consulting and other related services and supply of components, and to pay for imports, at least partly, by exporting our own technology, innovations and equipment. In short, this means increased bargaining power vis-a-vis foreign suppliers and, consequently, better terms for our technological imports.

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The majority of developing countries, certainly, are still a long way from being able to hold such a "negotiation card". But the most advanced of them (Brazil, Mexico, India, Iran, etc.), relying on the national R&D infrastructure already implanted, can, reportedly, even now apply such an import policy, at least in selected industries. This underlines how imperative it is for the Third World to be, as far as is feasible, technologically selfreliant in attaining its economic independence. International co-operation between developing countries can equally be directed to this end

A certain caution is called for, however, in the approach to practical interpretation of this often-mentioned aim Many scholars, in both developing and developed countries, see this self-reliance mainly as a way of dispensing with imports of "high technology"—and their social consequences—and using instead an "intermediate" technology, one that is labour-intensive and simple in application

One can cite, for example, the discussion in the NGO's newspaper *cosmos*, published during the UNCTAD conference in Nairobi, when some of the writers recommended that a country such as India should rely on local bio gas installations (producing gas from excrements) rather than on modern power stations.

It cannot be denied, of course, that introducing modern technology into a developing country, with unemployment and a deficiency of specialists, is far from being an easy matter, or that technological and social policies ought to be closely integrated. An "intermediate" approach, however, is pregnant with the danger that the present drastic technological disparity between developed and developing countries will become even greater, in time and dimension, so that, in this area, the latter are almost permanently handicapped. Both imported and indigenous technology can and should be suitably adapted to local needs. But "intermediate" versions are not conducive to economic growth and may indeed represent a step backwards from the desired goals.

It is interesting also to note that the developed market economies experienced similar concerns in their history, marked by decreased employment and the spectacle of workers in revolt against machines. The earliest was the so-called Luddites' movement directed against the "jenny" semi-automatic spinning machine in Britain's textile industry. More mature assessment has shown, however, that the source of evil was not the machines themselves but rather their profit-seeking utilization in a market economy.

Similarly, advanced technology is equally not an evil in itself. The problems it is now creating in developing economies are partly inherited from the colonial past and partly a result of recent efforts to transform their traditional structures in accordance with the classical pattern of "free market economy" No wonder that in such transformation the developing countries concerned suffer from its characteristic errors This is why the search for alternative ways of social development is widespread in the Third World, including careful study of the experiences of the Socialist countries with their planned interrelationship between technological and social goals

The above in no way implies that international transfer of technology by itself is to be underestimated Under present circumstances, it will, for a long time to come, be the main source of technological input for most of the Third World. Therefore, its principal terms and conditions must also be carefully examined and, if necessary, modified in order to turn them to proper use

Such restructuring may be directed to using imports not just as a channel for acquiring foreign technology but, simultaneously, as an instrument for stimulating the creation of indigenous technology. The examination may well start with the existing composition of the technology under transfer.

Where recipient developing countries are concerned, even for turn-key projects, this technology is at present comprised of merely operational elements designed for production but not for carrying out R&D. Deliberately or inadvertently, this means that recipient enterprises are "pre-programmed" never to be technologically self-reliant but to continue to purchase from the supplier every future generation of the technology involved.

This inborn weakness can be rectified if transfer contracts are made to cover the setting up of laboratories, pilot and training facilities, so that the imported technology can serve as a threshold for further progress on the spot.

This progressive approach is illustrated by recent Japanese technological imports. The original semi-conductors and television licences bought from the United States have been used for Japan's own mighty break-through to dominating the world market in household electronics.

We in the USSR generally insist that R&D facilities be supplied together with the production lines. This enabled us, for example, after manufacturing our first Fiat-type car, to design five new models of our own in the following four years for domestic and foreign markets, including the well-known "Lada". A bit more expensive initially but far more useful, this system may also interest recipient developing countries

A transfer agreement may be a rather vague arrangement without precise definition of the institutional and contractual framework. In particular, a recipient enterprise in a developing country may be either a national corporation The latter eventuality, no matter how well presented, gives the host country reason for concern

The technology transferred, even if being paid for, remains foreign property and cannot be passed on among local enterprises It is not necessarily suited to national goals and priorities Affiliates seldom possess R&D capabilities and can neither produce indigenous technology nor export it back. They function only to generate revenue

This is especially true in the case of the United States whose transnational corporations spend only about four per cent of their total R&D funds abroad Even in such a technologically advanced country as the Federal Republic of Germany, US affiliates have a negative balance of five to 500 in their international technological exchange, against two to three for national enterprises.

Affiliates under foreign ownership and control are rather dubious channels for transfer of technology. Its acquisition through national firms appears to be more efficient.

No transfer of technology to developing countries can contribute to their progress if it is accompanied by a reverse flow of their national specialists to developed market economies. While demonstrating—contrary to the tenets of racial prejudice—that people in developing countries are as clever as any others, this brain drain deprives the developing nations of the chance of building their own essential scientific staff The phenomenon (*contd on Page* 36)

WEALTH FROM WASTE

Food Cellulose Waste

M.M.S. KARKI

India produces enormous quantities of cellulose which is a potential source of food. But the problem of converting it into metabolizable sugar that would be economically competitive still requires to be tackled.

THE WORLD PRODUCES about 25 billion tonnes of cellulose annually Ubiquitous in nature, cellulose can be a potential source of food. It is a complex compound consisting of 3,000 or more glucose units and is not very different chemically from other carbohydrates Thus, it can be upgraded for human or more effectively animal nutrition.

So far cellulose is nondigestible by man, though it plays an important role in human digestive system The presence of celluloses, also called 'fibre' or 'roughage', in the diet is necessary for the mechanics of digestion and elimination of waste. The contraction of the muscular wall of the digestive organs is stimulated by the fibre, thus counteracting the tendency to constipation

Opportunities for introducing simple innovations in converting cellulose into food material can be many A few are presented here: (i) preparation of protein from leaves and similar materials, called leaf protein concentrate (LPC), (ii) growing protein producing organisms on the digested material, or coverting cellulose into soluble nutrient sugars for use as a food material for mankind, or for making alcohol, using appropriate enzymes for the purpose, and (iii) manipulation of the genetics of *Escherichica Coli*—a common gut bacterium in humans—to produce a strain that can convert undigestive cellulose into assimilable sugars and fatty acids In fact, the first two techniques are being exploited to a limited extent.

Leaf Protein Concentrate

There is an enormous untapped source of food in leaves, grasses, and waterweeds, which is currently utilized only as animal feeds Scientists opine that the world's 26,000 million hectares of meadows and pastures represent a vast source of protein. The nutritional value of LPC is superior to soyabean and other seed protein and almost equal to that of milk protein, says Dr. George Khohler, an American scientist. However, there are some unresolved questions concerning the digestibility of some LPC's by animals and human infants

The preparation of LPC is relatively simple The vegetable material is pulped with an excess of water, the juice pressed from the insoluble residue, and the protein precipitated by heating with or without acidification The resulting press cake is dark green because of its high chlorophyll content and includes 40 per cent dry matter, which is 60 to 70 per cent protein. Improvement of the colour and flavour of the cake requires extraction of the chlorophyll and lipid with an organic solvent The economics of the process in general depends on the cost of collection and transportation of raw materials, availability of cheap electricity or fuel and potable water

Single-Cell Protein, Sugars and Alcohol

One area in which both the developed and developing countries are active, is that of the production of microbial or single-cell protein (SCP). SCP refers to any crude or refined source of protein from unicellular or simple multicellular organisms, such as bacteria, yeast, fungi, and algae. These micro-organisms are grown on easily obtainable and utilizable materials such as bagasse (sugar refuse), molasses, animal feeds, petroleum waste, industrial waste, dairy waste, into animal feeds, and as a likely replacement for skimmed milk, it could also be used for human consumption when both animal and vegetable protein is scarce.

Unlike petroleum, which is a fossil fuel, cellulose is available from all plant sources and is constantly produced with the growth of plant, from the energy of sun through photosynthesis It would, therefore, be worthwhile to try it as a major source of SCP. In fact, experiments for producing SCP and edible carbohydrates from cellulose for animal feed are in progress in USA In one such experiment a few proteins have been developed by fermenting insoluble cellulose with bacteria An experiment on bagasse has resulted in a light-brown to yellow powder with a crude protein content from 50 to 60 per cent. Dr W. Dexter Bellamy, a New York scientist, has discovered that with the help of bacteria useless waste can be transformed into protein-rich animal fodder. He has already experimented with 140 colonies of various one-celled bacteria which can digest cellulose and other chemical compounds found in garbage. He has isolated a kind of bacteria that digests cellulose rapidly, reproduces quickly, and leaves an organic mass with high protein content He says that he sees no insurmountable problems in raising large bacterial populations, harvesting from them huge quantities of protein and giving it forms and flavour which animal would prefer

Cellulose can be turned into SCP either directly or after its enzymic hydrolysis to glucose followed by growth of suitable organisms on glucose.

Cellulose consists of glucose molecules linked in such a way that it cannot be easily broken. It can,

processing to get into a form suitable for use as food. Cellulose is therefore, a somewhat difficult form to be utilized as a substitute for growing micro-organisms under controlled conditions and generating desirable products However, as indicated in the preceding paragraph, the production of good quality SCP from cellulosic waste proved technically feasible

This involves the isolation and development of microorganisms capable of producing highly active cellulases, the enzymes to convert cellulose into sugars. Recent efforts on these lines have been greatly improved by the isolation of such cellulose-digesting enzymes from bacteria and fungi and fixing them on suitable media for continuous use for many days. *Trichoderma virde* has been the most promising among the many fungi studied for their cellulase production A prior chemical alkali treatment, before enzymes digestion, improves yield Yeasts or bacterial strains also need to be found which would easily grow on sugars derived from celluloses. The digested material can also serve as the medium for the growth of several different organisms and for the production of very large quantities of alcohol Cellulase-digested cellulose can therefore, lead to production of thousands of tonnes of materials. Even, it could be used as a raw material for nitrogen fixing micro-organisms so that very large quantities of fertilizer could be produced through nitrogen fixation.

In India, two groups of researchers are known to be engaged in this field. One is led by Dr V. Jagannathan, of National Chemical Laboratory (NCL) Pune. Dr. Jagannathan has been successful in isolating cellulases which can break cellulose conveniently. This is an inter-laboratory project, sponsored by CSIR in collaboration with Central Food Technological Institute (CFTRI), Mysore and Indian Institute of Science (IIS) Bangalore. Prof. Tarun K. Gosh of Indian Institute of Technology (IIT) New Delhi, has the pioneering role in another one. This group has been successful in producing glucose syrup And projection for a small commercial unit has been made They have also produced ethyl alcohol from cellulose like rice husk, jute sticks, corn cobs and paper pulp

However, there are many problems which need a solution before anticipating a major breakthrough. The main problem is the conversion of cellulose to metabolizable sugar in a manner that would be economically competitive with more readily available fermentable carbohydrates Grinding of cellulose into a fine slurry is the heart of the process Therefore, the essential steps of grinding require very detailed study The economic use of cellulose to generating food material also needs consideration. Cellulose hardly occurs in nature as a pure material, except in cotton. Impure cellulose material, which is more resistant an d complex, needs chemical processing to get a reasonably pure cellulose And so far microbic digestion has not been successfully developed for this treatment. The only convenient and reasonably lowpriced material is waste paper, but even here the cost is pretty high to expect production of a low-priced glucose syrup.

Another handicap is the conversion of the soluble light syrup into a solid form or stable product if it is to be used as a good material for mankind. Where it is to be converted into SCP directly, there may be no technical difficulties. To convert such soluble carbohydrates into alchohol for energy use is too farfetched for a normal situation

Until such time as wastes like bagasse, jute stalks or rice straw can be processed straightway to yield soluble carbohydrates, we may not achieve any breakthrough.

Genetic Manipulation

Digestion of cellulosic material in animals consists largely of fermentation executed by a complex combinations of protozoa and bacteria that are housed in a stomach compartment called rumen. The micro-organisms convert cellulose which is impervious to mammalian digestive enzymes into substances that their host can assimilate If humans could support gut organisms capable of degrading cellulose, they could acquire some of the dietary versatility of ruminants e.g. cattle, sheep and deer

Dr. Hargobind Khorana and his colleagues at the Massachusetts Institute of Technology (MIT) have constructed a gene—the basic unit of heredity—complete with its regulatory mechanisms. They have proved that the gene synthesized by them works by implanting it in a living bacterial cell where it functions as if it were the natural part of the cells heredity

The result of this research opens out several chemically related possibilities that could be brought about by genetic means. The manipulation of the genetics of *Escherichica coli* could be one of them so that it could also do the similar job for humans as the micro-organisms of animal stomach do for their host □

YOUR OWN R & D *(Contd from page 34)*

must be discouraged through international co-operation

These three courses of action can augment the efficiency of technology transfer to developing countries even within its present limits and must not, therefore, be ignored They have been embodied from the outset in Soviet technical assistance. The Socialist countries, for example, helped in setting up R&D and educational facilities in India, Burma, Egypt, Algeria, Iraq, Guinea, Mali, Sudan, Syria, and so on. They do not establish affiliates in the Third World nor do they permit a brain drain

To be fully effective, however, all changes in the composition of, and policies for, transfer of technology have to be supplemented by a favourable international trade policy environment This is why the seventh special session of the General Assembly called upon all states to participate in evolving an international code of conduct on transfer of technology. This work is proceeding in the context of the intergovernmental group of experts convened by UNCTAD.

The final shape of this code is to be determined at a later stage Most of the experts agree, however, that it must provide a set of generally equitable rules and guidelines with the purpose of facilitating the access to technology of all countries, particularly developing ones, with mutual guarantees for suppliers and recipients. Its hard core are those provision srelating to special treatment for developing countries and elimination of restriclive business practices.

To sum up problems in transfer of technology are not easy to resolve This assessment is valid only if it stimulates determination to overcome them The role of science and technology for socio-economic evolution is paramount for all countries, most of all for progress in the Third World.

Being genuinely international by its very nature and origin, technoloby—whether indigenous or imported—has to be enabled to fulfil this role. □

Courtesy : Development Forum

Books

A Gripping Story

The Golden Dawn (Novel) *by Raj Gill; Sterling Publishers, AB/9 Safdarjung Enclave, New Delhi-1100016; Pages* 256; *Rs.* 7.00

RAJ GILL IS the most distinguished of the younger set in Indo English writing. His first novel "The Rape" put him in the front rank of contemporary novelists "The Golden Dawn" is his second novel which vividly projects the vital sense of life with remarkable intellectual maturity and stylistic sophistication. As a well-known journalist he has encyclopaedic knowledge "of rural India as well as the tempo of life in a metropolis" The novel under review, therefoe, gives the flavour of rural life and illustrates lively the social milieu of the people in metropolises.

The main object of art and literature is to restore in us a freshness of vision, a more emotional glamour and more vital sense of life" The same applies to the novel in hand The author derives his inspiration from traditional lore, indigenous customs, and the oral tradition, in a bid to demonstrate indigenous customs, and the oral tradition, in a bid to demonstrate to his reader that India has a culture she can be proud of.

The Golden Dawn is a powerful love story, written with effortless ease, in Lucid and beautiful prose. It tells the "thrilling story of the young couple's escape from the frightening world of gold smuggling Face to face with death, they find strength and solace in their sincere and passionate love for each other." The story is gripping and fascinating One day, a beautiful young school teacher, Sapna, in Delhi was on her way home from school. She got off the bus and started walking What happened thereafter made her life miserable. In her own words: "I hadn't gone fifty paces when a taxi started I don't know why but I suddenly felt very frightened and stopped dead in my tracks. The taxi drew up level with me and its door opened. All that I remember afterwards was that someone grabbed me from behind and before I could scream he had pressed something wet and smelling, sickeningly sweet and strong over my mouth and nose. The copybooks that I was carrying home for correction fell on the ground. So did my hand bag. All I remember is that I was being pressed hard to the floor of the taxi a[nd] then a heavy cover was put over [me] shutting out all light." Then a gr[im] battle for freedom starts to the poi[nt] of bloody holocaust under the whip[ped] up passions in an atmosphere [of] "kill or to be killed."

Obviously the major proble[m] posed by the noval is to expose t[he] seamyside of life. But the auth[or] examines the problem of unde[r] world with compassion. Compa[s]sion without justice becomes sent[i]mentality, and sentimentality b[e]comes cruelty. So compassion d[e]feats itself if it is not subordinate t[o] justice, which says that a crim[e] must be punished, not that com[]passion may condone it. Thus Bil[]ram and Sapna do not accept vio[]lence without protest.

Shakti Pal Kewa

Economic Administration

Economics Planning and Public Administration *by P.R. Dubhashi Somaiya Publications Pvt. Ltd., Bombay, New Delhi; Pages* 150; *Price Rs.* 35.

IN THIS BOOK Shri Dubhashi brings together a series of papers in the areas of economic administration and management In the words of Prof V.K.R.V Rao who has written the forward to the book, Shri Dubhashi is a distinguished member of the Indian Administrative Service and combines in himself both administrative experience and academic interests The reader is treated to a generous evidence of both these. in the presentation of some fourteen essays contained in the book, most of which are reprints of earlier publications in the journal of Public Administration and other periodicals. The essays are broadly divided into three parts covening the areas of economics public administration and economics systems and management of the economic systems.

As a person active in the hurly buly of day-to-day administration, the author's observations on issues of managerial and administrative import are expected to attract wide attention Introducing the book he remarks that the economists's concern is with the economy and the administrator's preoccupation is with the efficiency and that in a planned economy the public administrator has to play the rule of an economist in action. Modern management as the author rightly contends elsewhere is an all inclusive system, drawing for its sus[]tenance and growth skills and tech[]niques from various disciplines no[t] to mention even certain branches o[f] engineering that are increasingl[y] being applied Modern economi[cs] and Economists with their heav[y] leaning on quantitative methods o[n] the other hand are a highly speciali[s]ed lot. To equate public admini[s]tration and management and con[]fine them to the somewhat narrowe[r] limits of economics as a cost-min[i]mising concept, is to flatter neithe[r] the economist nor the administra[]tor. Very correctly, the author ha[s] revealed an urge that is perhap[s] increasingly being shared by o[ur] administrators,

some of the essays particularly i[n] the concluding part of the serie[s] contain repetitive and descripti[ve] material some of which are summa[]rised versions of earlier reports o[f] official and non official committee[s] This could have easily been re[]duced relieving the reader of familia[r] ground. A more rewarding effor[t] however, could be the analysis o[f] instances of case situations whic[h] the author could have well draw[n] up on from his experience to illus[]trate the point of existing adminis[]trative procedures and bureaucra[]tic inhibitions hindering rather tha[n] helping the development process The author, understandably crit[i]cal of certain aspects of plannin[g] has identified some gaps in the plan[n]ing process especially at the regio[]nal and district levels of adminis[]tration. The absence of scientif[ic] methods at the subnational level

sources and evaluation of plan implementation are some of the more important aspects referred to. The writings, however, published as they were some years back lack relevance to more recent planning efforts and need to be updated in their supporting evidence. Important and qualitative changes that have been introduced in the planning process more place of aggregative and sectoral approach, funding on the basis of rigidly formulated implementation schedules including PERT charts as a part of routine Annual Plan exercises rapid expansion of growth centres and the growing provision for spatial concepts in area planning, to mention a few merit greater attention together, the collection of essays presented in the book should help the process of rebirth that our administrators have to undergo to fit in with the new role that is required to be played in the present context of change.

—K.S.V. Sanjeeva Rao

Monetary Principles

Monetary and International Economics *by K.P Sundaram; Sultan Chand and Sons, 4772/23 Daryaganj, New Delhi; Pages 550; Price Rs. 15.*

THE BOOK WRITTEN by Prof. K.P M Sundaram has already earned distinction and popularity. In the fourteenth revised edition the book has been made more informative. Sri Sundaram has tried to present a broad coverage of the principles of monetary and international economics at a level suitable for the undergraduates The book has been divided into five chapters; monetary economics, Keynesian economics, banking, international trade and exchange, Indian currency and banking.

Part I deals with the evolution of money, the currency system, valuation of money etc. In part II Prof Sundaram has tried to present a simplistic view of Keynesian Economics and in this attempt he fails miserably since Keynesian theory is tightly knotted with the cords of incomprehension and confusion and any attempt to unfold the same quickly and in a too simple manner would fail inevitably. In the subsequent chapters the author has incorporated the latest changes in Banking theory and foreign exchange and in addition, rightly too, these chapters are floodded with statistics to support the academic point of view

The aim of the author as to provide a comprehensive and elementary knowledge of all aspects of monetary and international economics has been fulfilled to a large extent It is eminently suitable as text book for students of Economics.

—V. Suryprakasa Rao

Planning Strategy

(*Contd From Page —5*)

of the Plan. Any how it is estimated that the number of unemployed would be nearabout 29 million at present. According to the estimates of Central Employment Directorate the number of unemployed and underemployed is likely to be 60 million and 300 million respectively by the end of the Fifth Plan period i.e. 1978 79

This grave problem must be given top priority if Planning is to survive in the country It requires a fundamental change in the pattern of investment. These investments have to be directed away from capital intensive industries to those industries which can provide maximum employment opportunities. We have to shift the production to those items of consumer goods which form the wage goods. The maximum emphasis is to be given to small scale enterprises It would be worthwhile to restrict the large scale industry for exports and defence only. The domestic market must be completely left to small scale sector and here also the amount of capital should not be more than five lakhs.

A large part of rural unemployed population can be gainfully employed through extensive redistribution of land, through land reforms and direction of credit facilities in favour of the poorest section of the society.

The present strategy is concentrattrating investments in urban areas, with the result that small minority is getting its benefits. The rural area where 80 per cent of the population lives is starved of resources. The benefit of investment carried out in the agricultural sector, such as for extension services, credit, irrigation and roads has been taken away by the large and prosperous farmers. The gap in the level of income is widening continuously between the prosperous farmers and the landless labour or marginal farmers The lopsided development is the main cause of rapid increase in unemployment and underemployment Unless the process is reversed, there is hardly any hope of improvement in the situation of unemployment. □

Development Notes

More Employment in Rural Areas

The Union Ministry of Agriculture and Irrigation has launched a scheme for the generation of additional employment opportunities in rural areas, under which part of the wages to the workers will be paid in the form of foodgrains. The scheme aims at augmenting investment on the maintenance of rural works in States. Under the scheme the Central Government will make available the agreed quantities of wheat and milo to the states without cost.

This additional employment potential on the maintenance of public works is designed to be utilised in the lean period when rural employment is at a low ebb of about 4 months. The categories of works, which will be eligible for assistance under this scheme are major, medium and minor irrigation works; flood control embankments, soil and water conservation works, afforestation and rural roads. The scheme combines three important aspects of economic activity, viz, relief of seasonal unemployment or underemployment, improvement of rural assets and utilisation of food reserves.

Pipeline Completed Ahead of Schedule

Oil India Limited (OIL) has completed ahead of schedule, the laying of 212 kilometre loop pipeline to pump crude oil to the Bongaigaon refinery, which is fast nearing completion.

The construction contract for this project had been entrusted to Engineering Projects (India) Limited (EPIL), and Engineers India Limited (EIL) was awarded the job of preparing the detailed project drawings, while the management and supervision of the project remained with OIL. Work on this 212 km-long loopline commenced in December 1976 and it was a race against time to complete the project before the 1977 monsoon.

Despite difficult terrain and climatic conditions prevailed in this remote region of Assam OIL and EPIL have been able to complete all major works connected with the project ahead of time. OIL is confident to commence pumping crude oil to Bongaigaon by September 1977, as planned.

OIL has at present the 1,150 km-long Naharkatiya-Barauni pipeline, which transports the crude oil it produces in Assam to the Gauhati and Barauni refineries.

The present loopline was necessitated because of the Government's decision to construct a refinery and petrochemical complex at Bongaigaon to facilitate the transport of this additional crude from Moran to Bongaigaon.

Oil Struck in Cauvery Basin

Oil has been struck for the first time in a self-flowing well in the Cauvery basin. The Oil and Natural Gas Commission (ONGC), began exploratory drilling in the basin over a decade ago. The "strike" in well number 10 at the sleepy village of Titacherry in Karaikkal had an intermittent flow of about one to 1.5 tonne a day. Though there had been traces of oil in some of the 16 other wells drilled by the ONGC they had to be abandoned as commercially not viable. The Cauvery basin, identified for exploratory drilling extends from Pondicherry to the south of Rameshwaram, a stretch of about 480 km. The ONGC will soon begin exploratory drilling in the Gulf of Mannar, about 15 km south of Rameshwaram.

Cost Reduction in Steel Production

The Steel Authority of India has decided to set up value engineering groups to evaluate and assess the potential for effecting cost reduction in steel production. The Indian steel industry, which has of a high degree of sophisticated technology, is poised for the highest ever saleable steel production since independence. Against a target of 6,465 million tonnes of saleable steel set for the current year, production during this financial year was likely to exceed 6.9 million tonnes, about 19 per cent more than last year.

Compared to 1974-75, nearly two million tonnes was available this year, an increase of 40 per cent. In the 11 months of 1976-77 Bhilai and Rourkela exceeded their target for the year by the end of February itself. Durgapur exceeded its production of last year before the end of February. The Durgapur Alloy Steel Plant operated at 121 per cent of the target for saleable steel.

SAIL steel sales rose by 35 per cent till the end of February as compared to the corresponding period last year. Domestic sales from the steel plants showed an increase of 24 per cent over sales during last year. Despite a sharp decline in demand in the international markets, export orders worth Rs 433 crores had been booked till the end of February this year. The actual exports during the year would be of Rs 300 crore against a target of Rs 290 crore fixed earlier.

IDBI Plan to Help Small Units

Eleven State Governments have expressed their concurrence to the guidelines prepared by the Industrial Development Bank of India (IDBI) for the utilisation of the special capital established to help small-scale sector through soft-term loans. The States are Assam, Andhra Pradesh, Gujarat, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Rajasthan, West Bengal, Manipur and Tripura. Two Union territories—Dadra, Nagar Haveli and Goa, Daman and Diu—have also extended their agreement to the guidelines. IDBI is in touch with other states in connection.

The special class of share capital was set up in February 1976 under the Public Financial Institutions Laws (Amendment) Act 1976 with the aim of enabling the state financial corporations to provide assistance on soft terms to projects in the small-scale sector which are basically viable but which may have difficulties of being implemented because of financial handicap of promoters or because of certain locational disadvantages.

Zinc Smelter Commissioned

The Visakhapatnam Zinc smelter has been commissioned. The lead smelter of this twin zinc lead plant is expected to be commissioned in the second phase by the end of the year. However, with the commissioning of the first phase of the plant, the total zinc smelting capacity in the country has gone up by from 38,000 tonnes to 95,000 tonnes, representing an increase of 57,000 tonnes or 150 per cent of the corresponding period of last year. The smelter, the second of its type in the public sector, is based on imported concentrates, having a total smelting capacity of 30,000 tonnes.

The existing zinc smelter at Debari in Rajasthan was expanded earlier this year to increase its smelting capacity from 18,000 tonnes to 45,000 tonnes. Both by the commissioning of the Vizag smelter and the expansion of the Debari smelter the production of metal is expected to go up to 60,000 by the end of this year, representing an increase of 130 per cent over January-December 1976.

Granite Deal with Italy

The Rajasthan State Industrial and Mineral Development Corporation (RIMDC) has bagged an export order worth Rs 10 million for granite to Italy. The granite purchases will be made by the Italian firm Notali group of industries over a period of five years.

The Italian firm was ready to purchase more from RIMDC if the latter was in a position to meet their requirement. RIMDC would supply 1,250 cubic metres of granite worth Rs 20 lakh to Italy per annum to start with RIMDC has the country's best granite deposits at Jalore in Rajasthan. The granite production was being raised to 4,000 cubic metres per annum from only 50 cubic metres at present. RIMDC would invest about Rs 20 lakh immediately to develop the mines and increase the granite production.

RIMDC has also signed an agreement with Italy for the purchase of sawing, cutting and polishing machines which would be installed at Jodhpur. The order placed was of the order of Rs 16.5 lakh. The new plant, which would greatly boost the production of granite would start working by the end of November.

Keel For a Pioneer Class Ship

Keel for yet another multi-purpose general cargo 21,600 DWT pioneer type vessel has been laid at Hindustan Shipyard Limited, Visakhapatnam.

This ship is the eleventh of the Pioneer type of vessels being built at the Shipyard, and the Third Pioneer type vessel for the Scindia Steam Navigation Company Limited, Bombay. Designed for a speed of 16 knots, this vessel will be fitted with a medium speed propulsion engine developing 9000 BHP. The design of the ship is modified to suit owners' special requirements and the vessel can carry ISO 20 ft. and 40 ft. containers palletised and bulk cargo in the holds as well as in fixed Tween Decks with the arrangement for forklift movements in Tween Decks. So far Hindustan Shipyard has built and delivered 73 ships including small crafts aggregating a cargo carrying capacity of about 6,96,297 tonnes deadweight.

World Bank Loan

The International Development Association (IDA) an affiliate of the World Bank, has approved credit of £ 12 million to help finance a project for expanding agricultural extension services and upgrading of research facilities in West Bengal. The project, through reorganisation and improvements in agricultural extension, research and staff training seeks to provide the means for sustained increases in production. A system of regular farm visits by trained village level workers to encourage the adoption of improved agricultural practices is envisaged under the project

Tractor Company Gets Big Export Order

International Tractor Company of India Ltd. (ITCI) has landed the biggest export order secured by any Indian tractor manufacturing organisation. Valued at over Rs. 10 crore, the order, from Turkey, for 2,500 International Tractor Model '444', was secured against, strong international competition, which included tractor manufacturers from Europe. The order takes effect on receipt of the required permit by the Turkish buyer. This is the third order received from Turkey ITCI has previously exported to Turkey 1,750 tractors valued at Rs 6.5 crore. ITCI has exported tractors and implements to the U.K. Australia, Japan, Indonesia, Kenya, Muscat, Nepal, Tanzania, Turkey, Uruguay and Zambia. The company started production of tractors at its plant near Bombay in 1966 and has so far produced over 60,000 tractors.

Aid For Nepal's Devighat Hydel Project

India will assist Nepal in the construction of the 14 megawatt Devighat hydel project on the Trishuli river which will cost around Rs 35 crore. This is the kingdom's second biggest hydel project on which the work will start soon. The Government of India had already released Rs. 1.4 million for the construction of roads and other services in the area. Nepals' biggest hydel project, the 21-megawatt Trishuli hydel project, has also been built with Indian assistance. It was formally handed over to the Government over a year back The Devighat hydel project which will be meeting Kathmandu's demand for power, will be utilising the tail waters of the Trishuli project.

Big Engineering Contract From Saudi Arabia

Following the major breakthrough provided by Saudi Arabia's virtual gift to India of a contract to build a power generation plant worth Rs 100 crore, official expectations are that engineering contracts valued at a minimum of Rs 600 crore will be obtained annually possibly beginning this year. The initiative for this has been taken by the Association of Indian Engineering Industry (AIEI) which has formulated a two pronged strategy for obtaining contracts on behalf of a consortum of public and private sector firms.

First it will adopt the "direct approach" by bidding for tenders floated by Saudi Arabia and, second, seek sub-contracts from Western consultancy firms engaged by that country to supervise implementation of projects under its $ 1,42,000 million Second Development Plan. Even if India gets less than one per cent of the total contracts from Saudi Arabia - and this is likely in view of the latter's new policy to favour "friendly developing countries" - it should be possible to win $ 1,000 million worth of orders annually. If attained this will solve all the foreign exchange problems of this country.

IDA Credit for Farm Development

A $20 million credit has been sanctioned by the International Development Association (IDA), an affiliate of the World Bank, to finance an agricultural development project in Orissa. Among Indian states, Orissa has the highest percentage of people living in rural areas. The project's main aim is to increase the production of foodgrains by strengthening agricultural extension and related research. Small farmers with limited financial resources but excess labour are expected to benefit greatly from the project's emphasis on efficient use of locally available resources.

Since groundwater resources are very important to agriculture in Orissa both in the short and long-term, the project also includes a three-year programme of extension of geo-hydrologic investigation. The interest free 50-year IDA credit will cover about half of the total cost of the project, estimated at US $ 40 million. The other half will be borne by the Government of Orissa.

Work on Super Thermal Power Unit Begins

Work on the first super thermal power station has commenced near Singrauli in Mirzapur district of Uttar Pradesh. The National Thermal Power Corporation Limited (NTPC), the newly established public sector company will erect and operate the Singrauli as well as all other super thermal power stations proposed to be set up in the central sector. NTPC has successfully completed a wide range of pre-construction and project engineering activities including survey and investigation. Arrangements for a loan of $ 50 million from the World Bank to finance the purchases of major equipment have also been finalised.

The Singrauli super thermal power station, designed for an ultimate generating capacity of 2,000 mw, will involve an estimated capital outlay of over Rs 800 crore including the cost of associated transmission network In the first 600 mw phase the project will have three generating sets of 200 mw at an estimated cost of Rs 255.66 crore and 400-kv transmission system at a cost of Rs 32 crore. The first set is sheduled to be commissioned in 1981, followed by subsequent sets at an interval of six months thereafter.

IDA Finance for the Thermal Plant

A credit of £ 150 million from the International Development Association (IDA) the soft-loan affiliate of the World Bank, will help finance the construction of the first phase of a 2,000 MW thermal power station in India. India's installed power generating capacity, which at the end of 1976 was a little more than 20,000 MW increased at an average annual rate of 10 per cent over the 20 year period beginning 1950. In recent years, however, demand has been considerably greater than the available supply. Plans are afoot to install additional capacity amounting to almost 30,000 MW by March 1984.

The project being assisted by the IDA consists of the construction of the first 600 MW of capacity in the Singrauli thermal power station, together with ancillary equipment and related works, and the 400 KV transmission facilities to convey this power to bulk supply points. The power station will be constructed with supplies from the Singrauli coalfield at Kota. It is expected to reach 2,000 MW capacity by October, 1985. The total Singrauli development including associated transmission, is estimatee to cost about £ 397 million. Implementation of the project will be the responsibility of the National Thermal Power Corporation Limited.

UR HANDLOOM
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Printed at Universal Advertisers E/2, Jhandewalan Extn , New Delhi-110055 and Published by the Director, Publications Division, Patiala House, New Delhi-110001.

YOJANA

Volume XXI Number 8
New Delhi
15 May, 1977
25 Vaisakha 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan, but is not restricted to expressing the official point of view.

Chief Editor
OMCHERRY N.N. PILLAI

IN THIS ISSUE

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Editorial Office : Yojana Bhavan, Parliament Street, New Delhi-110001. **Telegraphic Address :** Yojana, New Delhi, **Telephones:** 383655, 387910, 385481, extensions 402 and 420. **Circulation :** Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription ; Annual—Rs. 18, Two years—Rs. 30. Three years—Rs. 2, **Foreign Subscriptions :** One year—£2.70 or $5.50. Two Years—£4.50 or $9.00. Three Years—£6.30 or $12.50 Single copy—eight pennies or $0.25.

GUEST EDITORIAL

by

MOHAN DHARIA
Minister of Commerce, Civil Supplies and Cooperation

Exports and The New Import Policy

ECONOMIC growth in any country is directly dependent on the progress made in the various sectors of the economy. The progress of the industrial sector is greatly dependent on the timely availability of essential inputs, both domestically produced and imported. The new import policy for 1977-78 announced a few days back, attempts to meet this aspect of the industrial development of the country and expand production to meet the domestic requirements and for exports.

The import policy has been derived from a strategy of integrated economic development. More employment opportunities, rapid expansion of output, supply of essential commodities particularly to the weaker sections of the community, and improvement of the standard of living of the people, are the main objectives of the new policy. *It also aims at optimum utilisation of resources* for achieving growth in production both for domestic use and for export.

Apart from making a number of procedural simplifications, the new policy has liberalised imports by placing a number of items on Open General Licences and free licensing. The main philosophy behind this policy is to make available the essential requirements of the industry as easily as possible and also at internationally competitive prices. Even in the cases, where the imported items are canalised through the *public sector corporations, facility of direct imports* has been allowed. Liberal provisions of import are expected to serve the purpose of better utilisation of the industrial capacity already built up in the country.

In the area of exports, a number of *new innovations* have been introduced in the new import control policy. Firstly, in the case of registered exporters, the "shopping list" which prescribed limits for imports of different inputs has been done away with. Now the exporters would be able to obtain all their import requirements in accordance with their needs for the inputs. This should help in encouraging economy in the use of imported inputs and also economic purchase of imported items and thereby contribute to a reduction in the prices of the items produced. However, care has been taken by fixing limits or placing *certain restrictions on imports* so that the interest of the indigenous producers does not suffer. These restraints are expected to provide the necessary protection to the indigenous industry and create a climate for them to improve both the quality and price of their products.

Although a scheme of duty free import in case of advance licences was in operation for some time, it was not functioning smoothly. The scheme, therefore, has been reframed and now the list covers as many as 94 items, the import of which is allowed without payment of import duty. The advantage to the importer is that he is not required to pay any import duty on the raw materials imported, unless he fails to discharge the obligation imposed on the advance import licence. This is a significant improvement on the earlier situation when importers were required to claim refund of the import duty paid, as in the event even of a 100% refund of import duty it involved costs because of the locking up of funds in the initial stage.

While protecting the interests of the indigenous suppliers of machinery and capital goods etc. the import replenishment licences will now be available for being utilised for import of machinery and spare parts under certain conditions. While in the case of spare parts, the licences can be used for import up to 10% of their value in the case of machinery the full entitlement can be used for import of machinery required for expansion, replacement, balancing, modernisation or research and development.

Imports into the free trade zones at Kandla and Santa Cruz have been further expanded by putting the import of (a) machinery (b) raw materials (c) components (d) spare parts of machinery (e) consumables (f) tools, jigs, ganges and fixtures (g) technical and trade samples on open general licences. The *imports of these items in these zones do not need any import licences.*

Import of some items is canalised through public sector organisations like S.T.C., M.M.T.C., SAIL etc. However, for a number of these items, the exporters are allowed to make direct imports, notwithstanding the fact that the items have been canalised. This has been done to enable the exporters to import their requirements most economically and at internationally competitive prices and to make timely imports in accordance with their requirement for meeting the domestic production schedules and delivery schedules of export orders in hand.

The scheme in respect of export houses has been both revised and simplified. The new scheme will provide greater opportunity to the export houses, to offer merchandising and other services to their supporting manufacturers particularly those in the small scale and cottage industry sectors. The overall objective of the new scheme is that manufacturers, specially in the

(Contd. on page 36)

We Will Make Our Own History

JAYAPRAKASH NARAYAN

MANY FRIENDS have been pressing me in the past few months to say something to the Nation. Being bed-ridden and therefore out of touch with the objective situation in the country, I have been hesitating to say anything.

Only a few days ago, the Prime Minister spoke to the Nation After his excellent discourse, I have thought there was no need for any other voice to be raised. But friends still think that the Prime Minister having spoken as the Head of the Government, there was need for a common citizen like me to speak on behalf of the people.

While I disclaim any authority to speak for the people, I am placing here my views as a common citizen

Students' and People's Movement

The first observation that I should like to make and emphasise is, that the results of the last General Elections were due to the student's and people's movement that had started from Gujarat and spread to Bihar and whose message had resounded throughout the country

The essence of that message was that an elected representative of the people does not necessarily require a right to hold on to his position until the expiry of his legal term

The principle that was asserted during the movement was that when an individual representative, or a representative Government fail in their duty, became corrupt and oppressive and inefficient, the electors, i e the people, had a right to demand their resignation irrespective of the time they may yet have left to service.

The example of ex-President Richard Nixon of the United States, illustrates the proposition I am enunciating here.

It is true that what is called the 'right of recall has no place in our Constitution. But in a democracy, the people have an unwritten right. which they can exercise if and when necessary

Text of Message to the Nation.

All this does not mean that any small number of disgruntled persons have the right to demand an elected representative or Government to step down from office whenever they wish

But it does mean that if it is found beyond any doubt that a vast majority of the people concerned are convinced of the corruption, nepotism and inefficiency of a Government or an elected representative and demand their resignation. the people's voice must prevail

Will of the Majority Must Prevail

It is possible that the party in power, or the individual representative concerned, might also mobilise their supporters, but if there is a genuine people's upsurge against them, democratic ethics and practice require that the will of the people, great majority, must prevail over that of a small minority

To the constitutionalists this may appear to be an anarchic proposition However, it should be remembered that practically every major constitution in the world was drafted in the wake of revolutionary upheavals

This is a good occasion to look back and recall how the students' movement against corruption in Gujarat had assumed an all-India character Political and Governmental corruption was the central point of the people's movement Therefore, it is the duty of those who have come to power in the wake of that movement to take some concrete and effective steps to stop and root out corruption from these spheres

It is my view that just like the High Courts and the Supreme Court, there should be an autonomous institution set up with legal authority and rights both at the Centre and in the States. The Swedish Ombudsman naturally comes to one's mind, but in the Indian conditions some broader kind of institution seems to be necessary.

For instance, at the Centre a body that may be known as Lokpal might be set up consisting of not more than 5 members with powers to hold investigations on their own initiative as well as on the initiative of any citizen or any private or public body.

A group of individual jurists might be entrusted with the task of drawing up a blueprint of such a body and a clause to this effect might be inserted in the Constitution These are my first expectations from the Government

Electoral and Administrative Reforms

The main issue raised by the students'-cum-people's movement was electoral and administrative reforms so as to make elections cheap and truly representative and bring the administration nearer to the people

Another important demand concerns educational reforms so as to relate education to the problems of the country and fit the educated to deal with them. It was also desired that a medium of education should be made universal and illiteracy and ignorance banished from the land.

The Charter of Demands that I placed before the Speaker of the Lok Sabha and the President of the Rajya Sabha on behalf of the people on 6th March, 1975, deserves to be reproduced here so that it may serve as a standard by which to measure the work and functioning of the present government

Except for the Centre, the Congress Governments still continue function in the States. It is necessary as soon as possible to give chance to the people to elect their fresh representatives who would be committed to the People's Charter in addition to their election manifestos.

Faith in 'Total Revolution'

It will be recalled that the ultimate objective of the people's movement was defined by me as Total Revolution. This term 'Total Revolution' was derived by some at that time and brushed aside by

(*Contd. on page* 16)

All developing countries face the problem of balance of payments. Export earnings have immediate relation to the pace of development and the fact of underdevelopment itself is a constraint on export performance. How do we get out of this vicious circle? The answer lies in improving the quantum and quality of production of exportable items through hard work, imaginative planning and good salesmanship. India's performance has not been bad though it could be a lot better says,

DR. (MRS) KIRAN BARMAN

Export Strategy For Growth

DURING the process of economic development, every developing economy faces foreign exchange problem mainly due to (a) unfavourable conditions of external demand; (b) structural rigidities and imbalances in the various sectors of the economy; and (c) failure to pursue appropriate economic policies in some cases. To bridge up the foreign exchange gap two alternatives are open in the absence of foreign assistance. (i) reduction of imports through import substitution, and (ii) expansion of export earnings or export promotion However, the experience shows that the first alternative is not feasible in the early stages of economic development. To accelerate the rate of growth to put the economy out of 'poverty' and the 'Malthusian trap' such an economy needs increasing imports. Consequently, in such a situation the choice left before us is 'either to enjoy complete external equilibrium with a low growth rate or to diversify and to expand its exports in order to quicken its pace of gowth to achieve a new equilibrium'. Hence the need for strategic role of exports and especially that of manufactured and semimanufactured commodities is quite obvious in order to accelerate the pace of economic development

Increase in export earnings, consistent with the requirements of defence and development, has been the objective of India's foreign trade policy. However, since 1951 our foreign trade has been dominated by rising imports and relatively slow increase in exports On the eve of the First Five year Plan our exports were valued at Rs 601 crores which increased to Rs 2523 crores at the end of the Fourth Five year Plan. During the same period the imports increased from Rs 650 crores to Rs 2,955 crores (Table 1). It is, however, encouraging that our export earnings showed an increase of 31 per cent in 1974-75 and 18 4 per cent in 1975-76. However, due to a sharp increase in imports, of 65.3 per cent, the year 1974-75 ended with a trade deficit Rs. 1,180 crores which was the financed mainly by drawings from IMF under the 'Oil Facility' and external aid In 1975-76 the trade deficit is estimated to be around at Rs. 1,155 crores This gap with uncertain aid prospects and the keen desire for self reliance, makes it imperative that exports should be increased rapidly.

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It is worth bearing in mind the unfortunate fact that India's share in the total world exports declined from 2.2 per cent in 1950 to 1.19 per cent in 1960. It further declined to 0 72 per cent in 1970 and to 0.53 per cent in 1975 (Table 2) This is an unhealthy trend for our economy and the process must be halted

There are various external and internal difficulties which have stood in the way of expansion of our exports. On the external front, the factors which affect the foreign demand of a country's exports, are (i) income of the foreigners which affect their demand for Indian goods; (ii) prices of exported goods, and (iii) prices of related commodities in the world markets An exporting country can exercise control over prices of its export goods in proportion to its hold on the world market. To study the impact of prices on export performance through external demand, the export market can be divided into three parts, (i) commodities in which India is a major partner with other countries, i.e. oligopolistic market; (ii) commodities over which India exercises virtual control of supply, i.e. monopoly market; and (iii) commodities in which India is a marginal exporter, i.e. imperfect market

Oligopolistic Markets

Commodities like tea, cotton textiles, Virginia tobacco, manganese ore, black pepper and castor oil together account on an average for about 40 per cent of India's total exports and market for such commodities is more or less oligopolistic in nature. It is evident that with limited partners of equal strength in practical business it may be difficult for any single oligopolist to improve greatly upon his existing relative share of the total market by reducing the price of his product. Chances of new entrants in such markets are not remote. If the world trade is growing the oligopolist can have the benefit of marginal expansion. Thus India's share in world trade of such commodities is more or less constant and it cannot grow; it is to be accounted for by factors originating outside the economy. The sluggishness in demand is the basic limiting factor, although the possibility of inefficiency on the part of the oligopolists cannot be denied.

Jute manufactures, natural mica and lac are the commodities in which India enjoyed more or less a complete monopoly earlier No doubt some substitutes have been developed but their share in world markets is still small Hence Indian policies, more than any thing else would be responsible if there is stagnation in exports

In commodities in which India is a marginal producer such as coffee, raw cotton, raw wool, hides and skins, groundnut etc internal demand has increased rapidly and this has obstructed rapid increase in their exports.

Besides, the changing pattern of world trade is such that instead of promoting industrial development and raising the standard of living

in developing countries, the trade among the developed countries has widened and this has increased inequalities between the developed and the developing countries Further, protective barriers imposed by the developed countries have adversely affected the export trade of developing countries. Recession in developed countries has been another limiting factor in this regard.

Internal Factors that Affect Export Prices

On the internal front factors like export control, export duties, increased domestic absorption of exportable items for internal consumption, changes in resource allocation, rising cost of production leading to lesser competitiveness of goods in the export markets, necessity for import controls, emergence of new foreign competitors in the form of producers and suppliers of synthetic substitutes etc. act and react to influence supplies and prices of our exports.

A country like India where the need for rapid development is ever increasing, a serious problem arises due to expansion in domestic demand for exportable commodities, on account of rising incomes of the people. This increase in incomes exerts a downward pressure not only on exportable consumer goods but also on raw materials which are increasingly utilised by domestic industries to meet internal demand "There will also be a 'rebound effect' of the diversion to the domestic market of the demand that in the absence of import control, would have led to an increase in the consumption of imported goods" In such a case the private exporters find the domestic market attractive is in fact very attractive if one takes into account the exchange control, export quota and other regulatory measures which are associated with exports Rising incomes in such economies strengthen demand for consumer goods and present obstacles to exports For the private exporter the whole question is of relative profitability of the domestic market as compared to the external market.

To overcome these difficulties and to impart dynamism to our exports, the Government of India has recently taken a number of measures. These cover finance for export assistance and incentives, transport facilities, training in market research, rationalisation of institutional arrangements and technical services, release of foreign exchange for specified purposes, import replenishment, priority in allotment of source raw materials, etc. A number of steps have been taken from time to time by the Government and the Reserve Bank to provide credit facilty to exporters at a reasonable rate of interest. Commercial Banks also provide credit to exporters on a priority basis and the exporters can obtain both pre-shipment and post-shipment advances from these banks at concessional rates of interest For export promotion the Government of India has also set up several specialised organisations such as Board of Trade, Trade Development Authority, Export Promotion Councils, Commodity Boards, Indian Institute of Foreign Trade, Export Inspection Council etc India has also entered into a number of trade agreements with a number of countries to expand her commercial relations. From time to time, trade and economic delegations are also exchanged with other countries with a view to increasing and diversifying the flow of trade both in pattern and direction

Export Planning

As a result our exports have increased from Rs. 1971 crores in 1972-73 to Rs 2,523 crores in 1973-74, Rs. 3,331 crores in 1974-75 and to Rs 3,863 crores in 1975-76 Thus our exports have nearly doubled during the past four years However, this is no reason whatever

TABLE 1

India's Foreign Trade

(Rs. in crores)

Year	Exports	Imports	Trade Balance (+or—)
1950-51	601	650	—49
1955-56	641	761	—120
1960-61	660	1,140	—480
1965-66	860	1,408	—602
1969-70	1,413	1,582	—169
1970-71	1,535	1,634	—99
1971-72	1,608	1,825	—217
1972-73	1,971	1,867	+104
1973-74	2,523	2,955	—432
1974-75	3,331	4,520	—1,189
1975-76	3,863	5,018	—1,155

Source Reserve Bank of India Bulletin (Various issues)

TABLE 2

India in World Exports

(Million U.S. dollars)

Year	World export	India's export	India's share in world exports (in %)
1950	55,800	1,145	2.1
1955	83,365	1,263	1.5
1960	113,275	1,331	1.2
1965	165,405	1,687	1.0
1966	181,304	1,577	0.9
1967	190,600	1,613	0.8
1968	213,300	1,761	0 8
1969	244,800	1,835	0.7
1970	280,700	2,026	0.7
1971	314,800	2,034	0.6
1972	375,100	2,459	0.7
1973	519,700	2,943	0.6
1974	779,500	3,902	0.5
1975	793,254	4,180	0.5

Source · International Financial Statistics IMF (Various issues).

for complacency in our export performance and we are still not out of the woods and much remains to be done to make our economy self reliant in foreign trade. For this purpose, export planning should be done sufficiently in advance.

In this connection trade and development policies should also be integrated in such a way so as to reinforce each other's strength for the economic reconstruction

Under the present circumstances our export planning should be done on a year to year basis and these yearly targets have to be dovetailed with long term projections A minimum period of 5 years will be required to gear production pattern to our export needs Therefore, comprehensive export and production planning over the next five years becomes extremely important

Export planning needs to be done in terms of products that can be sold abroad and markets which can absorb these products Obviously, growth of our exports will depend partly on increase in world demand and partly on our ability to secure a large share of the overseas market

In spite of the considerable diversification that has taken place in the past five years, there is still substantial concentration of the export trade both productwise as well as market wise The ten major products, namely, jute manufactures, tea, lac, natural mica, manganese ore, unmanufactured tobacco, leather, vegetable oils, fresh fruits and nuts, etc. together account for about 60 per cent of our exports Similarly, the first five major importing countries (UK, USA, USSR, Japan and Wes tGermany) together absorb nearly 55 per cent of our exports However, it is interesting to note that India's exports to these countries form a very small percentage of their total imports· in the USA it was 0 6 per cent, in the UK 0 92 per cent and in Japan 1 1 per cent

Hence, the immediate need before the country is to ensure that within the next five years not only the trade gap is narrowed down but eliminated as far as possible Indeed we have to think in terms of a surplus. It is gratifying that there has been a trade surplus of Rs 754 million in the first seven months (April to October of 1976-77, as compared with a deficit of Rs 9,162 million during the corresponding period of 1975 The country's foreign exchange reserves stood at Rs 22,460 million on December 17, 1976. This is the highest level reached in the last 20 years The study made by the Federation of Indian Chambers of Commerce and Industry, has estimated that our exports in 1980-81 could be of the order of Rs 5,811 - 6,265 crores at 1974-75 prices. This will mean that against the minimum estimated import needs of Rs 5,559 crores in 1980-81, there will be a small surplus

TABLE 3
Increase in Production and Exports in 1980-81 over 1974-75

	Unit	Increase in Exports (1980-81) over 1974-75	Increase in Production (1980-81) over 1974-75
Tea	Th. Tonnes	47	101
Coffee	,,	9	17
Tobacco (unmanufactured)	,,	42	78
Jute manufactures	,,	35	161
Sugar	M. Tonnes	1	2
Marine Products	Lakh Tonnes	1	5
Non-essential oils	M. Tonnes	0.02	0.04
Coal and coke	,,	1	76
Iron ore	,,	23	31
Cement	,,	2	15
Art silk Fabrics	M Metres	66	263
Cotton textiles (mill made)	,,	57	657
Cotton textiles (handloom & power loom)	,,	82	701
Chemicals and allied products	Rs Cr.	155	431
Engineering goods	,,	752	4,424
Rubber Manufactures	,,	37	182
Leather and Leather products	,,	163	559
Cashew kernels	Th Tonnes	20	20
Spieces	M. Kg.	12	87
Rice	Th. Tonnes	39	6,070
Coir and coir products	,,	3	16

Source Eastern Economist (Records and Statistics) July 9, 1976

Higher Production, Key to Increased Exports

In a country with a growing population export surplus can only be obtained with increased production of the items that keep pace with their demand-internal as well as external Unless production is increased, export surplus will become difficult. This emphasises the need to establish a close and reciprocal relationship between the external demand and a continuous expansion in the production of exportable items For example, is estimated by F I.C C I that in order to be able to increase the export of engineering goods by Rs 752 crores in 1980-81 over 1974-75, the improvement in domestic production will have to be of the order of Rs. 4,424 crores Similarly, for increase in the exports of jute manufctres by 35,000 tonnes, domestic output will need to be raised by 161,000 tonnes Similar indicative targets have been set down for tea, coffee, tobacoo (unmanufactured), sugar, coal and coke, iron ore and cement, cotton textiles, art silk fabrics etc (Table 3)

The level of investment for additional exports should be matched by additional savings Unless the country is in a position to make this extra saving effort it will not be possible to support our expanding export programme It has been found by the F.I.C.C.I that, on an average an export of Re 1 will require an investment of Re. 0 75 to generate the necessary production. On the basis of export growth in 1970-75, it can be estimated that Rs 160 crores of additional savings per year or0.38per cent of the GNP has been used for export purposes So if the export target is to be maintained, an additional Rs 600 crores will have to be earmarked, to sustain production for exports. This would mean that in the next 5 years about 0.81 per cent of GNP will have to be saved to finance investment in export production industries and we can be certain that this goal would be achieved if fiscal policies are

more actively geared to promote larger savings.

Our experience shows that export market is not steady Innovations, changes in tastes and fashions, political disturbances, international economic developments, currency variations, freight rates changes, crop failures strikes etc. expose the export market to great fluctuations Therefore in this changing situation it is necessary that our cost of production should be competitive and quality of our products should be of the international standard. This can be possible only when our major export industries such as jute, cotton textiles, sugar, footwear, castings etc are rationalised

In the world market we have to compete on equal terms with highly industrialised countries These large sized units have a much lower cost of production as compared to our units and in certain cases their quality is also superior India can increase its exports of manufactured products in a big way if in the few selected industries with vast export potential, optimum size units are established and liberal financial support and assistance is provided For such units debt equity ratio should be considerably liberalised

The Problem of Selling

Indian machinery, especially textiles, sugar, cement and paper has established its name in South East Asia, West Asia and the African countries There is export potential for these and other Indian machinery if we give greater encouragement to joint ventures Till the end of March 1976 only 66 Indian industrial joint ventures went into production generating the export of about 32 crores. It is understood that many more joint ventures are under implementation which bring in foreign exchange to the tune of Rs 18 crores The joint ventures help not only in the export of machinery, but they also result in invisible exports of consultancy services, oil engineering works and generate income by way of management fees, dividends etc Joint ventures which have already gone into production have earned Rs 4 to 5 crores to the nation by way of dividends, know-how and other fees The joint ventures also help in the creation of demand of some of the inputs which are not available in the countries where these ventures are established. It is desirable that we should greatly encourage such ventures

A product does not sell easily and automatically in the world market even if it meets internationalpr ice and quality standards. Protective barriers imposed by foreign governments have special importance in this connection. According to a study conducted by the UNCTAD, the industrial tariffs, prior to Kennedy round in major developed countries were noticeably higher in some category or products, particularly textiles and clothing as comp red to other categories More generally the study points out, that there was a clear tendency for tariff rather to rise with the degree of labour intensity In spite of measures against such high tariffs adopted in the Kennedy round, reduction of such tariffs in labour intensive products was relatively smaller

Commercial Policies in Developing Countries

In recent year adequate attention has been paid to the various aspects of commercial policies in countries which have embarhed upon a programme of economic development Various devices of commercial policies such as tariffs, quotas, fixed exchange rates, trade promotion, marketing, negotiating techniques etc. are being used which have a decisive role to play Tariffs which were widely used to improve situation of unemployment in the thirties have since been used to check inflow of exports of manufactures and semi-manufactures to the great-disadvantage of the exports from the developing countries. In all the four UNCTAD and also in GATT, less developed countries have negotiated for tariff reduction on grounds of most favoured nations. However, in practice these countries have not been successful in their attempt.

Besides the rich Indian cultural background and with an extensive area covering a variety of natural vegetation and climate, India can use its valuable heritage to increase its foreign exchange earnings No doubt attention has been given in recent years but much more needs to be done This requires conscious and integrated planning not only at the national level but also at the regional level Its success also requires financial and other assistance from the developed countries Once it is successfully organised, it may render multiple benefits such as mutual goodwill and other non-tangible benefits in addition to bringing in much needed foreign exchange earnings □

EDUCATION AND EMPLOYMENT

K. K. RUDRA

and

S. P. RASTOGI

THE PROBLEM of educated unemployment has been engaging the attention of both educationists and policy planners in the Government for a long time and more particularly, since the beginning of the Fourth Plan.

Large scale unemployment among engineers, agricultural graduates and trained teachers in particular, attracted the attention of the Government to the issue of educated unemployment and various special programmes were adopted in the Fourth Five Year Plan like special employment programmes, programmes for educated unemployed and Half-a-million Jobs Programme designed in promote self-employment ventures as also the employability of the educated through stipendary training in addition to the employment generated by the functioning of usual plan programmes.

However, position did not improve at the end of the Fourth Five Year plan. The Draft Fifth Five Year Plan notes "The investment made in the Fourth Plan did not generate the same degree of development as was anticipated, both in the agricultural and industrial sectors' (Vol II Page 267) Agricultural production faced a slump owing to the drought and scarcity conditions several parts of the country There was also stagnation in industrial production The employment in the organised sector (covered by the Employment market information programme of the DGE & T) rose from 16 6 million in 1969 to 19 3 million in 1974 or only by about 15.2% which means an average rate of growth of 3 2 per annum. The inflationery conditions in the years 1973-74 and 1974-75 at home and abroad coupled with a tremendous rise in the oil prices since the year 1974 affected the place of economic growth in these two years (1973-74 and 1974-75) resulting in the deterioration in the job situation. The number of educated job seekers rose from 15 lakh in 1969 to 48 lakh in 1975 Among the educated job seekers the plight of engineering and agricultural graduates has received much attention from the planners. Quite so as huge resources have been invested in agricultural and engineering education and there is a large time lag in their supply But the position of job seekers in the category of graduates and post-graduates in Arts, Science and Commerce is not in any way better. These three categories form the bulk of graduate and post graduate job seekers 55,786 graduates and postgraduates were on the live register of employment exchanges on 32.12.61 whereas there were 755,889 graduates and post graduates on the live register at the end of year 1973. Out of them 6,52,026 about, 86 per Cent were graduates and post graduates in Arts, Science and Commerce In 1975 there were 8 lakh graduates and post-graduates in Arts, Science and Commerce on the live register

However, this data is not completely reliable as a true indicator of unemployment in the country. Its limitations are well known – multiple registration, presence of employed job seekers in the register, non-registration by a portion of unemployed persons and incomplete coverage with respect to rural areas, yet it is the only available time series data on the unemployment situation of the country which may indicate the trend in the unemployment situation over time When a cross sectional view is taken of the live register of the employment exchanges in various States in the country one can safely assume that the limitations do not affect the relative position of the States so far as unemployment is concerned However, as a precaution it is appropriate to apply correction factor particularly for the presence of employed job seekers on the live registers Since 1972 survey is on a large-sample and improved methodology, it is better to use its findings for correction of live register data. The problem of non-registration and that of incomplete coverage are not as significant in the case of educated job seekers as in the case of uneducated It is well known that the public sector is the major employer of educated persons in the country and recruitment in the public sector of educated persons is largely affected through the employment exchanges. Similarly the concentration of educated persons in the urban areas is a well known fact. The limited coverage of rural areas do not matter as much as in the case of educated job seekers

Enquiry into the causes

The problem of educated unemployment is a well known problem of maladjustment of supply and demand – supply of educated job seekers and demand for educated persons So any analysis of the problem will have to probe both the demand and the supply sides We have already noted the deficient demand conditions which apply equally to these categories as to others, if not more severely (because these categories have no special training in skills) Be that as it may, it is true that impact of deficient demand conditions is made often more severe by a rise in supply. The supply is primarily constituted by the out-turn from the colleges and universities

If we look at the supply side it will be evident that the facilities for general education has expanded greatly in our country through the plans The number of universities has risen from 27 to 96 and colleges from 695 to 3467 between 1950-51 and 1973-74 The number of collegeates arts science and commerce combined recorded a very sharp rise from 0 33 million to 3 million in this period raising the proportion of students in the age group 17-23 from barely 1 p c to 4 4 per cent. The out-turn of degree classes (general education) had similarly recorded a large rise from 39 thousand to 2.15 lakhs between 1950-51 and 1970-71.

In view of the simultaneous rise in the number of out-turn and the registered unemployed persons belonging to these categories we can arrive at a hypothesis that higher the educational out-turn, the higher is the incidence of unemployment in the State For the purpose of this paper only the total out-turn of graduates and post-graduates in arts, science and commerce have been taken for the reference period 1970-71. The out-turn data is available from the University Grants Commission This has then been related to the corrected data of job seekers on the live register brought out by the DGE&T. As some time lag (between 3 and 6 months in the

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Shri Rudra and Shri Rastogi belong to the Planning Commission

minimum) is believed to exist generally between the students passing out of colleges and universities and their subsequent registration with the employment exchanges for jobs the 1970-71 State-wise has been utilised. (Table).

In 1970-71 U.P. leads (63634) in outturn while the last position goes to Haryana (690) West Bengal and Maharashtra. To have a better idea about the relative size of the outturn the latter has been converted further to out turn per lakh of population data as per 1971 census. This adjusted data shows now a slightly different picture While Haryana occupies the last position, the leader is now Delhi (335) followed by Punjab (possibly a large number of students belonging to Haryana study in the colleges and Universities in Delhi and Punjab because of contiguity of these States and U.P. to Haryana and also because of relatively smaller development of college level educational facilities in the area belonging to Haryana which earlier formed a part of Punjab) West Bengal now occupies the third position, U.P., the eighth So far as the registered unemployment as on 31-12-71 is concerned West Bengal tops the list followed by Bihar and U.P The last position is taken by J&K while Haryana is the last but one So the two ranks appear to be fairly close

Rank correlation

Finally in order to determine the degree of rank correlation between the outturn and registered unemployment of graduates in arts, science and commerce they are further rank co-related with help of formula $r=1-6 \Sigma d^2/n-(n/^2-1)$ where/'r' is the rank correlation coefficient, d is the difference in rank and n is the total number of states and Union Territories considered (i.e. 17).

The value of 'r' obtained with the help of this formula appears also to be highly significant (0.73) So a significant relationship between the outturn of graduates and registered unemployment among them may be suggested. The confidence in this co-relation is further strengthened by a very low margin of error (0 0348) which is far less 1/6th of 'r'.

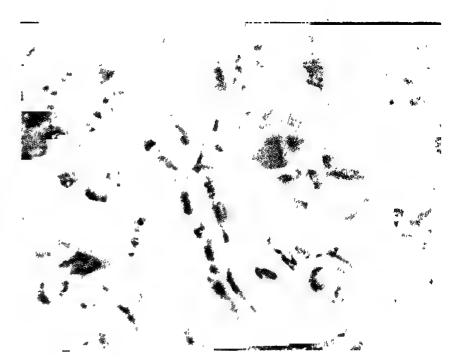
The implications of the above study for policy purposes are obvious A policy of restricted expansion of the college education is to be followed While such a policy has already been there in the case of engineering (both degree and diploma) medical and agricultural education, no similar restriction has been imposed on general college and university education either at the State or at the national level so far Individual colleges might be imposing restrictions on admissions by demanding a certain level of marks obtained in the last examination (H S School final or Degree level, or the case may be) But there is no deliberate policy regarding the college-university enrolment in the context of planned development in the country There is a great public demand for college and university education which is believed to confer 'status' on the citizens in the society Limited job opportunities also have accelerated demand for higher education (particularly university education) as college education defers the entry into the job market and a university degree is also claimed as premium for eligibility for jobs. It is however admitted that it is more difficult to plan the admissions to general education than to technical education. The courses in general education, do not train a person for specific job requirement. There is no definite occupation-education linkage here. For example, for the post of an assistant in a government department any degree, be it in arts, science or commerce will do. So their market requirements cannot be estimated very easily, to which their supply can be fruitfully linked However, one thing is very clear we have to restrict the college and university education and attention is to be given more to qualitative rather than quantitative aspects of the college education. Craze for wage employment has also to be suitably curbed through vocational guidance Arrangements for training of school college leavers in self-employment in order to build up knowledge, preparedness and ability for self employment may be made regular and broad-based Moreover, as the Committee on Unemployment (1970) has noted, it is necessary to see that degrees are not used as filtering devices for jobs where a lower qualification will do

The recently adopted 10+2 +3 system of education with its emphasis on work experience and vocational courses is a step in the right direction though it may now be posing some teething problems of equipments, text books and training, added to the problems which are transitional in nature Attack on the supply side alone will not solve matters It has also to be supported by suitable promotional measures on the demand side for ensuring a faster pace of employment-oriented economic growth □

APPENDIX

Out-turn and number of Graduates and Post Graduates in Arts, Sciences and Commerce on the Live Register of Employment Exchanges in States

Sl No.	States	Out-turn 1968-70 (UGC)	Rank	Live Register Dec. 1971 (DGE&T)	Percentage really unemployed	Rank	Actual unemployed	Population in lakh (1971 census)	Out-turn per lakh of persons	Rank
1.	Andhra Pradesh	12,446	13	17,751	68.5	5	12,297	455	29	15
2.	Assam	7,338	14	4,747	65.5	15	3,247	150	49	12
3.	Bihar	25,027	6	27,477	84 4	2	32,171	564	44	14
4.	Gujarat	1,371	8	13,257	57 7	10	7,677	267	73	7
5.	Haryana	670	17	5,078	60.0	16	3,110	100	7	17
6.	Jammu & Kashmir	3,635	16	2,057	70 3	17	1,447	46	80	5
7.	Kerala	17,437	7	18,817	65 3	6	12,287	213	82	4
8.	Maharashtra	13,997	3	17,723	57.3	8	10,682	504	67	9
7.	Madhya Pradesh	30,857	4	20,477	51 6	7	10,566	417	74	6
10.	Karnataha	16,481	10	17,255	66.7	7	11,544	273	56	10
11	Punjab	30,267	5	7,765	62 1	12	4,822	136	223	2
12.	Rajasthan	12,780	12	7,363	47.7	13	4,653	258	50	11
13.	Tamil Nadu	17,626	7	22,274	67.4	4	15,472	412	48	13
14	Utter Pradesh	63,634	1	32,418	58.6	3	18,977	883	72	8
15	West Bengal	50,540	22	76,805	70.7	1	54,301	443	114	3
16.	Delhi	13,746	11	16,188	40 7	11	6,587	41	335	1
17.	Orissa	4,618	15	6,886	65.7	14	4,524	220	21	16

MARKETING OF CHILLIES FOR EXPORTS

A SIVA RAMA PRASAD

OF THE many spices that are exported from India, red chillies rank third in importance in respect of value On an average, about 18,000 tonnes of red chillies valued at Rs 53 million are exported from the country annually

Chillies are also produced in Japan, China, Burma, Kenya, Malaysia, Indonesia, Tanzania, Uganda, Pakistan and Singapore The exports of chillies from these countries, however, are relatively small as will be evident from Table 1

Indian Chillies have a high degree of pungency which the chillies in other countries generally lack Only the 'Hontaka' and 'Sontaka' varieties of Japan are somewhat comparable to the medium varieties of Indian chillies Indian chillies can be stored for a longer duration than chillies of other origins In India chillies are produced all the year round, while in other countries their production is seasonal India is, thus, in a position to export chillies which are of better quality to any country in any quantity and at any time However, because of their quality, Indian chillies are reported to cost more than the produce of other countries

Exports

When compared to the total production, the export of chillies from India is negligible – hardly three percent of the total production leaves the shores of the country. Table - 2 indicates the total production and exports to different countries to the world.

Ceylon is the most important buyer for Indian chillies as above 80 per cent of exports from India are taken by this country

Varieties

Though India produces a number of varieties of chillies, like Sannam, Rari, Mundu, Gospurea, Dandicut etc Only the Sannam variety of chillies is being exported in large quantity Ceylon imports mainly the Sannam variety which is mostly cultivated in the States of Andhra Pradesh and Tamilnadu Ceylon, perhaps on account of its close proximity to the Madras coast, has a special preference to the Sannam variety.

Quality Control of Chillies

The compulsory quality control and pre-shipment inspection scheme for chillies came into force with effect from 1st January, 1963. The chillies that are exported from the country are compulsorily graded according to the Chillies Gradin and Marketing Rules, 1962, prc mulgated, under the Agricultura Produce (Grading & Marketing Act. Agmark grades have bee specified under separate schedule for chillies of Sannam, Mundi Gospurea and Rari varieties. Fc chillies of other varieties one moi schedule has been prescribed. Be sides the varietal characteristics th grades of chillies are based on lengt admixure with other varieties, pe centage of loose seeds, broke chillies, colour and damaged an discoloured capsules etc. No cor signment of chillies having a moi ture content of more than 11.5 pe cent is allowed to be exporte Ceylon, which imports a sizeab quantity of chillies every year, h set up a co-operative wholesa Establishment through which a imports of chillies are channelise This Organisation invites glob tenders periodically for the supp of chillies. India is a major compet tor in these tenders and has an a vantage over the other competito in respect of the following.

TABLE 1

A Balance Sheet of World Trade in Chillies Peak Year 1971

Producers	Quantity in '000 tonnes	Consuming Countries		
		Ceylon	U.S.A.	Others
India	15.00	12.00	2.00	1.00
Japan	5.00	2.00	2 00	1.00
Mexico	3 00	—	3.00	—
TOTAL ·	23 00	14 00	7.00	2 00

Shri Prasad is Lecturer in Commerce, V.S.R. College, Tenali.

TABLE 2

Chillies : World Production and Trade

Particulars	1950	1960	1965	1970	1975
Indian Production ('000 tonnes)	351	419	383	450	500
Indian Exports (Tonnes)	3106	8364	9532	15000	18000
Indian Exports as percentage of production	0 9	2.0	2 5	3 3	3 6
Production in other Countries :					
Thailand ('000 tonnes)	—	47	74	60	65
Japan ('000 tonnes)	—	—	7	4	5
Mexico ('000 tonnes)	—	—	21	22	25
Burma ('000 tonnes)	—	—	17	18	20
Major Exporters :					
Japan (Tonnes)	813	3353	4092	4000	4000
China (Tonnes)	1270	1829	3150	2000	2000
Thailand (Tonnes)	6198	5029	1575	2500	2500
Mexico (Tonnes)	1219	1727	2743	2000	2000
Indonesia (Tonnes)	—	2083	508	1000	1000
Major Importers :					
Ceylon (Tonnes)	—	8819	14129	20000	20000
U.S.A. (Tonnes)	—	3571	4822	7000	9000

(a) It can supply at short notice graded and Agmarked chillies in any quantity It may be stated that no other country excepting Japan has introduced quality control in Chillies

(b) It can despatch chillies by country boats to Ceylon at minimum freight rates as the freight charges between Tuticorin and Colombo is the least The freight rate between Tuticorin and Colombo is Rs 1 06 per bag of 25 Kgs Whereas the freight rate between Japan and Ceylon is £ 16 55 for 40 cwt of chillies

Consequent Problems :

The following are some of the major problems affecting the quality of chillies meant for export Because of his eagerness to take the chillies to the market as early as possible, the producer usually harvests both ripe and unripe capsules together and dries the lot and takes it to the market without any sorting or grading The exporter usually purchases his requirements from the assembling markets, whenever he has an export order to execute As he is hard pressed for time to fulfil his commitment, he also offers the produce for Agmarking without any sorting on his part. The Inspectorate Staff at the time of Agmarking very carefully examine the produce and straightway reject it if it is not upto the Agmark standard

Once the lot is rejected, the shipper engages additional labour to sort and grade the produce according to Agmark grades This naturally increases his marketing costs. It is estimated that this re-grading of rejected lots costs the shipper about Rs 4 60 for each bag Lack of godown facilities especially with the Bombay merchants further enhances their difficulties. In their case the cost of re-grading a rejected lot is very high as the labour charges as well as rental charges for godowns are much higher in Bombay To obviate these difficulties the exporters should offer a little premium for chillies graded by the producer themselves and make them quality conscious. Similarly they should grade the produce on the basis of Agmark grades in the assembling markets before the sending the lots to ports for exports. A similar scheme of grading chillies at the assembling markets is already in vogue in Southern India. The commercial grading of chillies is already introduced in Sankaran Koil, Theni etc.

Similarly the producer-sellers do not bestow the necessary attention to dry the produce sufficiently before selling the same in assembling markets Such undried lots contain a high percentage of moisture and are rejected by Agmarking staff The excess moisture also leads to discolouration of the pods. Extreme care is also needed in handling chillies as they turn brittle on drying and the capsules break if handled roughly, letting out the seeds

Export Strategy — Recommendations

The present exports of chillies from the country are only 3 6 per cent of the total production (See Table 2) If Ceylon is excluded, India is not exporting even 1,000 tonnes to any other country Exports of 12,000 tonnes in 1975 show that our strategy is still based on Ceylon market and no other Dependance on only one market for the disposal of the crop is not always advantageous and efforts are needed to ex-

The necessity of careful handling of chillies need hardly be emphasised. This crude way of packing chillies results in breakage of the capsules and consequent loss to the grower.

plore new markets for Indian chillies. In this connection, the Indian Institute of Foreign Trade is conducting market survey studies in overseas markets to explore the possibilities of establishing new markets for Indian Chillies.

Next to Ceylon, the United States is the most attractive market for chillies. United States' importers, however, wish the Food and Drug Administration Regulations lay down stringent conditions for compliance before Indian chillies enter that market substantially. The Scoville Test for heat content is the single most important condition Indian chillies will need to pass for entry into this market. Besides, chillies have to keep up to the standards of requisite cleanliness and colour and should be without stems and caps and unblemished and free from mould Moreover, the Indian chillies, were found to be costlier in U S markets

India has been excluded from this attractive market largely by failure to guarantee unblemished quantity The Scoville Test for measuring the heat content of the chillies has only recently been formulated by the Food and Technological Institute, and it is felt that the Indian standards on moisture content are not stringent enough

There are opportunities for substantial exports to the United States, if Indian chillies of requisite specifications and gradings can be supplied It is essential that immediate adjustment in Indian Agmark standards should be carried out

Canada is yet another market which is still to be explored The Middle East is an area where India exports a little, but opportunities for more exist. There is also a limited market in a few other countries of Eastern and Western Europe Moreover, there is a specific market for chilli powder and chilli sauce in some other countries and possibility of exports from India are to be explored There is the danger of infestation of chilli-powder and this necessitates research and quality control to ensure an acceptable product

The Japanese chillies—'Hontaka' and 'Sontaka' - have a reputation in the United States and Canada These chillies are unblemished, have no stalks or caps, have the appropriate deep red colour and fully qualify by Scoville Test Every process in Japan from the sowing of seeds is carefully supervised and strict inspection of quality and cleanliness is carried out. Efforts should be made to follow these principles in India as well

The prices in India are subject to very wide fluctuations With a little over-production, the prices crash down and the acreage under the crop is reduced. In harvesting season it is necessary that the Government authorises either the State Trading Corporation or Food Corporation of India to buy the graded chillies in Regulated Markets at minimum fixed prices □

IGNORAMAN

wants to know whether those who defect suffer from incurable defects.

STUDENTS' FORUM

WATER is one of the basic elements to all life and covers more than 70 per cent of earth's surface However, of all the available fresh water, the mainland water is of great consequence to mankind.

But the essential aspect of water is its fluidity and varying distribution as regards time and space. It is this variability of the flowing water, from disastrous floods in some areas to equally catastrophic droughts in others, which is of grave concern to the planners and politicians alike

There have been scores of inter-state water and boundary disputes from time to time leading to waste of time, money and energy of the nation as a whole. Should we then declare :

Land and Water as National Property

Your entry in about 250 words should reach by 31st July 1977 on the following address :

**Editor,
Yojana,
Room No. 505
Yojana Bhavan,
Parliament Street,
New Delhi-110001.**

BONUS AND WORKERS' RESPONSIBILITY

Bonus is not a grudging gift which the employers are compelled to give to appease the labour. It is a recognition of their contribution to the profitability of an enterprise. As labour and capital are equal partners in an industry, full gains of increased productivity should be equitably distributed between the two parties.

SUMITRA KULKARNI

LABOUR NOT only helps the production and economic growth of a country but also shapes the destiny of the nation in a real sense. The first focal points of our freedom struggle were the industrial and labour centres. Mahatma Gandhi was the first man to organise labour in 1917 and lead them through a successful strike in Ahmedabad. He recognised labour as an agent of change for economic and social revolution and quite early in the freedom movement he directed some of his very able workers to exclusively devote themselves to trade union activity as distinct from political struggle

Just as Gandhiji was the first man to organise a strike he was also the first man to demand bonus He successfully negotiated with the millowners of Ahmedabad and persuaded them to share their enormous profits with the textile workers On 28 October 1921, the fitst Bonus Award was given. On one side there was Mangal Girdhar, President of the Ahmedabad Millowners' Association, and on the other side the textile workers of Ahmedabad led by Gandhiji. The millowners resisted this novel idea of bonus But Gandhiji persisted and insisted that the demand for bonus was fair and just and the millowners should in their own interest share the profit with labour without whom they could not have amassed such wealth He explained that the entrepreneurship and capital investment by millowners could not by themselves produce wealth without the crucial input of labour. It was not easy to carry conviction with the capitalists, and then came a deadlock Ultimately Gandhiji suggested that Madan Mohan Malaviya should arbitrate between the two parties. In the beginning the millowners' Association and their President baulked at the idea According to them, how could a Brahmin know anything about textile business or appreciate the intricacies of the labour problem But finally they came round and Malaviyaji was accepted as the arbitrator. Gandhiji pleaded the case of labour so ably that the mill magnets were convinced of the correctness of his stand The bonus formula as it finally emerged was that wages for 13 months and 10 days were paid to the workers for 12 months work done This was a great victory for the workers and since then the workers of the country have got their rights to bonus duly recognised though every now and then disputes arise because of confusion of the bonus policy and lack of sincerity in implementing it

Mrs Kulkarni is a Member of Parliament.

What is Bonus?

Industry or for that matter, any venture is ultimately a cooperative effort between labour and capital Capital is only one input and labour the other, equally important and in some respects more significant input In fact, capital is a potential asset and it is labour that makes it dynamic by making it productive It is this living bond between capital and labour that was recognised by Gandhiji

The approach of the captains of industry should not be such as to exploit labour but to strengthen it and increasingly mobilize its potential for the common good The theory that profits should wholly go to the owners of industry is an outdated concept Labour's contribution to productivity is vital – in fact so vital that this casts a great responsibility on the workers to increase productivity and promote profitability It is only in this way that the entrepreneur, capitalist and the worker create wealth The industrialisation of a country will really advance when wage levels are not determined by the minimum price at which labour can be purchased but are at the optimal remuneration for productive level. This is the rationale behind the concept of need based wages which was the basic demand before independence and that is the ideal towards which the efforts of the Government should be directed. It is true we in this country have not yet attained this ideal but our goal has always been clear

A Novel Method

This is also the philosophy behind Bonus Bonus is, therefore, not a grudging gift which industry should feel compelled to give the workers to buy peace but it should be a recognition of the devoted partnership in the development of industry By the same token, bonus should be linked to productivity, and act as a spur to increased production The Government has taken a pragmatic view and laid down that no bonus will be payable unless the concern is making profit If this meets with the needs of the managers and owners of industry it also throws on them the responsibility to ensure profits and share them equitably with workers Unfortunately, however, there are many instances where accounting jugglery takes place and profits are converted into losses with a view to cheating the labour of its rightful share This is happening both in private sector as well as in public sector concerns. Profits are declared on the basis of a balance sheet and that is liable to be manipulated It is a common experience that balance sheet is mostly an excercise in figures where the experienced accountants jumble up the profit and loss accounts and assets and liabilities in such a fashion that few can disentangle it, including the professional accountants Then again, bonus is paid on allocable surplus and by the time all fancy planning is provided for no allocable

surplus is left for the share of labour.

In recent years, the Steel industry and its labour has tried a novel method for calculating bonus on an experimental basis in the Bhilai Steel Plant. For the last three years the profit made by the Company is being computed on the basis of the total production of the plant and the productivity records of each labour, which are being religiously maintained On the basis of this triangular computation Bonus is worked out and disbursed. So far the experiment seems to be succeeding In addition to this they are proposing to have plant performance schemes which can ultimately be applied to all the organised industries in the country

In fact, bonus should not only be linked with productivity but also ensure that the full gains of increased productivity do not go in a disproportionately large measure to the hands of the employers The gains should be equitably distributed between the two parties – labour and capital – in their partnership towards progress

Accountability is also Important

Another important point which should be borne in mind is that the Bonus is not only a question of accounting It is also a question of accountability. Just as the industry is aware of its accountability to its Board of Directors it should also be accountable to the society and to the workers. This alone will ensure the balanced progress and harmonious function of the industry.

At present excessive stress is being given on accounting which results in jugglery of figures and doctoring of balance sheets. If this concept of accountability is accepted and honestly implemented then only the real fruits of economic development will be available to the country as a whole and not merely to a coterie. One bane of our industry is the lack of method in evaluating results and productivity Even in spheres where tangible results can be gauged we do not pay sufficient importance to the concept of accurate measurements. In our entire management, there is no scientific or systematic evaluation of economic growth of productivity. It is not as if this measurement is not feasible or highly complicated It is only a question of evolving methods. Once this is done the industry and the labour will clearly know where things stand and what should be done to improve the production as well as profits and reap the benefits of the economy of scales. But this naturally presupposes a basic structure which without manipulating figures or account books gives a clear picture and submits itself to measurement and subsequent scrutiny. However most of our companies are satisfied into making profits and fight shy of measurements merely because they do not want to face workers' demand for recognition and reward based on measurement.

Thus, the bonus is a two way traffic. The labour has to ensure and increase productivity to merit it. Labour has to learn to distinguish between the industry and the management Industry, whether private or public is a property of the nation and it has to be respected as such Then only the industry as such can prosper – management is distinct from the industry and the labour may have differences with the management But very often or rather mostly the labour movement is confused on this issue and identifies industry with the management and non-cooperates with the industry in a manner that retards production, affecting the nations economy hurting the very cause of labour Therefore, the worker has to be an enlightened citizen of a modern democratic socialist country where he can ensure production and increase efficiency Similarly, the employers have to be conscious of their social responsibility and their accountability to the other partner, labour, and ensure fair and prompt computation of their share in the profits of the company □

(*contd. from Page* 4)

some others as a dream of an impractical man

Therefore, I should like to respect my faith in what I called total revolution and pledge myself to work for it as soon as my health permits

In our heritage from the past there are some things that are noble and valuable They have to be preserved and strengthened. But we have also inherited a great deal of superstition and wrong values and unjust human and social relations

Black Spot of the Society

The caste system among the Hindus is a glaring example of our evil inheritance From the time of Lord Buddha, and may be from even earlier times, attempts have been made to destroy the heirarchical system of caste but it still flourishes in every part of the country. It is time that we blotted out this black spot from the Hindu society and proclaimed and practised the equality and brotherhood of all men.

Similarly, there are rotten customs and manners associated with such things as marriage, birth, death, etc The purging of these evils also falls within the purview of the Total Revolution.

Coming to more modern spheres of life, such as education, it is time that the radical recommendations of the several Education Commissions, the Kothari Commission not being the least of them, are implemented

Here we might follow the example of China, in which all the schools and colleges have closed down and the students were sent out to the villages and slums of the towns to impart the rudiments of education to every citizen young or old.

I have not said anything here about the usual socio-economic reforms that are so much talked about but about which so little has actually been done. For this task too, youth power can be drafted with advantage to the youth themselves and to society at large

Finally, if God grants me better health in the coming months, I look forward to take up my cry of Total Revolution and do watever might lie in my power

In the meanwhile, the work need not be stopped Let everyone do his bit, singly or in cooperation with others

Here is a beacon light for our youth. I hope they will steer the course of their life towards that light

I am at their disposal even in my sick bed for advice and such guidance as might be capable of giving.

So, forward, my young friends. '*Sampoorna Kranti ab Naara hai. Bhawi Itihas hamara hai*'."

We are reproducing this provocative article on India's rural poverty from "Ceres, the FAO Review on Development", for September-October 1976. It presents a profile of poverty in India which State policies governing grain surpluses and their distribution have not succeeded in reducing. It pictures rural India with millions of people remaining outside the orbit of the public distribution system, with all the attendant problems of access to whatever surplus India's farms produce. In comparison, however, the more well-to-do and the urban middle classes have benefited. Bold types are ours.

Yojana will be happy to publish readers' informed comments on this article.

The Exploiters of Fate

T. J. BYRES

OF ALL the recent developments in India. perhaps the nodal one – the one in which the major contradictions of Indian society intersect and are expressed most starkly – a massive and increasing poverty. India throughout its recorded history, has been characterized by poverty and inequality. But contemporary poverty is of a special kind, marked as it is by a severing of traditional relationships and increasing political consciousness on the part of the poor.

In the underlying processes at work, the consumption patterns of the Indian poor, in both town and country, and within them the role of food, are of central significance In their turn, given these consumption patterns, the marketing arrangements in India are critically important and have indeed been one of the factors hastening the growth of poverty Marketing procedures, of course, cannot be divorced from the complex of influence that affect the level and structure of production and the latter merit attention Most important, in determining all of these realities, are the class configurations that exist in India, and which are expressed in and through the polity. Analysis that does not take class divisions into account may be worse than useless; it may be mystifying and positively misleading

India's current population is around 612 million and growing at about 22 per cent per annum compound, or by an annual absolute amount of 14 million or so Of the total population, approximately 80 per cent (or 490 million) live in rural India and 20 per cent (or 122 million) in urban India, a rural-urban structure that has changed relatively little in the last thirty years There has been some debate on the precise dimensions of poverty in India; at a conservative estimate, around 51 per cent of the total population, or 312 million people, live below the poverty line (defined in terms of a nutritionally adequate diet or a minimum desirable level of income) In rural India, probably about 50 per cent or 245 million (some estimates go far higher), live in deep poverty, most of them, in the words of one sober commentator, in "infernal destitution." In urban India, the figures are 55 per cent and 67 million respectively Certainly, the absolute magnitude of the poor has been increasing by substantial amounts and will continue to increase in both rural and urban India, and almost certainly the relative amounts are growing too The rural poor are composed of poor peasants (many of them sharecroppers and most of them forced to hire themselves out as casual labour to ensure a bare survival), landless labourers (some rendered landless recently), and rural artisans thrown out of employment by the spread of modern industry, and their number would be considerably larger but for the migration of many to towns and cities in the vain quest for employment The urban poor include the lumpen proletariat, without fixed employment and often pavement dwellers (who comprise what is euphemistically called the "informal sector" by underemployed develoment economists), and sections of the urban proletariat ((factory workers, for example) whose real earnings have stagnated since 1950.

A Growing Army of Poor

The rural poor devote, on average, something like 80 percent of their expenditure to food items, with the very poor devoting rather more (up to 83 per cent or so). In urban areas, while the very poor show a percentage of expenditure going to food almost identical to that of their rural counterparts (as Dandekar and Rath comment, at "the rock bottom of physical existence... there is little room for variation"), the overall average is less at about 75 per cent, partly because as one moves away from the very poor in the urban situation, the claim of rent upon resources is relatively high. The implications of the similarities and differences between rural and urban India in this respect (and indeed, of the significant regional variations that exist) are of considerable interest and in a large treatment would require careful analysis. But they need not detain us here The most striking aspect of the consumption patterns of the poor, both rural and urban, is for present purposes the extremely high proportion of their expenditure given to food

It is not only, however, that food looms ominously large in the consumption patterns of India's massive and growing army of poor (less a "reserve army of labour" than a "redundant army") The nature of what the Indian poor eat - if they can get it – is important. The overwhelming component is foodgrains and their substitutes. In the case of the rural poor on average more than 60 per cent of total consumer expenditure is taken by this category with the very poor relying particularly heavily upon it, and about 19 per cent by other items of food (such as edible oil, ghee and butter; sugar and jaggery, milk, meat and fish, which the poor buy in very small quantities and only intermittently). Among the urban poor, the very poor apply about 64 per cent of their expenditure to foodgrains and their substitutes and 18 per cent to other items of food (in this respect, again very like their rural equivalents). But as one moves away from them these proportions

change until among the higher layers of the urban poor they are respectively 36 per cent and 34 per cent. With the averages, however around 47 per cent and 29 per cent respectively for the urban poor as a whole, there is no gainsaying the considerable importance of foodgrains and their substitutes for the great mass of the Indian poor. In some parts of India, substitutes are important (in Kerala for example, tapioca is widely used), but it is foodgrains that constitute the critical element of the diet

Among foodgrains, one notes, there are two broad classes to be identified on the one hand superior or fine foodgrains, and on the other inferior or coarse The former are the cereals, wheat and rice, to which the poor have little access they are the fare, essentially, of the relatively well-off (with regional differences in which one predominates among those who can afford to buy them) The latter include the coarse cereals (maize and millets like durra, bajra and ragi) and also pulses (grams and lentils), and it is upon these that the poor depend heavily Pulses, in particular, are important as the major source of protein

The urban poor, obviously, have no opinion but to buy their food on the market. It is to be stressed, however, that this is true of the vast majority of the rural poor, too, both landless labourers and village artisans are more or less completely dependent on the market for their foodgrains (except in those relatively rare cases where either of these groups is paid in kind, and even where this is so they will still have to purchase a sizable proportion of what they eat), and a very large fraction of poor peasants are similarly dependent (where they themselves are forced to market food at harvest time, they have to buy food back later in the season often at far higher prices) This is an extremely important point that is often ignored in analyses of the intersectoral terms of trade The terms of trade in India have moved steadily in agriculture's favour ever since the mid or late 1950s, but this does not mean, as is often implied, that the whole rural population benefits The rural subaltern classes suffer from high food prices as much as the urban poor High food prices mean, for both the urban and the rural poor, that if, as has been the case, money income has been rising more slowly that food prices, the poor are squeezed in two ways: first, they are able to buy even less non-food items since their very physical survival is contingent upon obtaining food; and second, they may also have to reduce their consumption of purchased food and see their consumption of certain items shrink. What has happened in India to the supply and the prices of the food-grains the poor consume?

The Food Basket

The rate of growth of production of foodgrains as a whole has barely kept ahead of population growth since the mid-1950s, so that per caput net availability of foodgrains (i.e including imports) has risen hardly at all; this latter was 15.2 ounces per day in 1956 and 15.8 ounces per day in 1974. An examination of the different components of foodgrain output is very revealing Superior foodgrains i.e wheat and rice, have done perceptibly better on the whole than the coarse grains (with the exception, perhaps, of maize) especially in the last decade, and wheat has done very significantly better If the green revolution strategy has chalked up any successes in India, it is in relation to wheat. Thus it is that, with respect to the food basket, the interests of the relatively prosperous have been served. And they have been served, we know, in another important way, inasmuch as resources have been steered toward the richer regions, i e, for the most part those well endowed with irrigation and within those regions toward rich peasants and landlords, thus ensuring a widening of income inequality Coarse cereals, we observe, are predominantly rain-fed crops grown in drought prone areas – areas that the green revolution has bypassed: it is not that these crops are completely untouched by the new strategy, for some of them have registered growth in certain irrigated pockets of the country, but they have been neglected to a very considerable degree It is, of course, conceivable that the result of a buoyant output in the superior grains (and particularly wheat) might be a fall in prices, which would enable the poor to participate in whatever breakthrough may have taken place (One adds the caution that break-through is far too strong a word, since the great revolution has not yet come to rice on a wide front, while in wheat there is evidence of a tailing-off in growth after the initial bonanza years)

But, as we shall see in a moment, there has been no such price effect for reasons stemming from the basic class configurations in Indian society, in this instance from the dominance in the policy of those very rich peasants and landlords who received the highly subsidized inputs designed to usher in a green revolution. The poor have benefited not at all For the poor, indeed, the most portentous feature of the last twenty years has been the virtual stagnation in the production of pulses, which has brought about a fall in their net availability from 2.48 ounces per day in 1956 to 1.41 ounces per day in 1974, with alarming import for the supply of protein to the poor It is a tendency that has been quickened by the new strategy In those areas in which the new (subsidized) technology has made the production of wheat relatively very profitable, there has been a diversion of acreage from the production of pulses to wheat (there has been some diversion to one or two of the coarse cereals, too, but not on a scale sufficient to have any favourable implications for the poor).

Of Scant Comfort

Foodgrain prices were relatively stable in the 1950s, but have risen dramatically in the 1960s and 1970s The average for the decade 1950-60 (with 1950-51 – 100) was 99 9, for the decade 1960-70 (1960-61 100), it was 162 4; and for 1970-74 (1961-62 - 100) it was 241.5 All foodgrain prices have shared in the accelerating upward movement of the 1960s and 1970s, but disaggregation reveals that if we compare cereals and pulses since the mid-1950s, the increase in pulse prices has been especially rapid (see table)

Within the cereals category, the prices of co rse cereals like durra and bajra have lagged behind those of wheat and rice of late. But this has been of scant comfort to the poor The prospect before them is one of the prices of their staples rising steeply, which hits them very badly, while those of possible substitutes, traditionally beyond their reach, rise even more steeply, which puts them even further beyond their reach If we turn to the influences at work in the marketing of foodgrains, we discover institutional factors, rooted in the class structure, which give a powerful upward bias to foodgrain prices and which otherwise militate against the welfare of the poor.

There can be no doubt that, in conditions of society the machinations of private traders and rich peasants, able and willing to hold

TABLE

Annual growth of prices of cereals and pulses in India by plans (in percentages)

	Second Plan (1956-61)	Third Plan (1941-64)	Annual Plans (1966-69)	Fourth Plan (1969-74)	Whole period (1956-74)
Cereals	2.13	11 28	5 73	8.14	6.2 [illegible]
Pulses	4.22	17.16	—1.54	16.99	9.4

Source: From data in R. Radhakrishna and Atul Sharma, "Distributional Effects of the Current Inflation," Social Scientist, Vol. 3 No 617. January/February, 1975.

stocks with the aim of securing high prices, can add to any upward impetus prices may have. In India, these classes have had access to credit at low rates of interest from the banks, which helps them to do precisely this and to frustrate the Government's declared policy of controlling the grain trade in the interests of the poor (one of the many gaps between avowed policy and observed practice) The major casualities of such activities, let us stress, must be the poor; the margins within which they subsist are so narrow that they are severely hit by rising food prices

Sets a floor to prices

Do the poor derive any benefit from the Government's positive intervention in the grain trade — intervention whose original raison d'etre was, supposedly, to protect those who are most vulnerable to high food prices. Indeed, on balance this intervention is harmful to the poor. The government's stated aim has been to "socialize the grain surplus" (i.e. take the grain trade out of private hands completely), but it has come nowhere near this. Government procurement measures have never secured more than 7 or 8 per cent of total foodgrain production (or somewhere between 20 and 25 per cent of the marketed surplus of foodgrains). The organized pressure and power of the All-India Foodgrain Dealers' Association (apart from the clout of the very powerful rich peasants) have seen to that.

The wheat trade was nationalized in April 1973, but denationalized in the next year. Procurement, indeed, has been most successful in the case of superior grains, particularly so in wheat, less so in rice, but in neither instance achieving a commanding presence with respect to the marketed surplus. It is significant that procurement activities have been concentrated on the superior grains and have barely touched the coarse grains, despite the urgings of the Agricultural Prices Commission to the contrary. The poor, therefore, receive no advantage. Moreover, to the extent that the Government, by setting consistently and unnecessarily high procurement prices (far higher than those recommended by the Agricultural Prices Commission) as a result of organized pressure from rich peasants, sets a floor to prices and encourages their increase — the private trade taking its cue from each round of ever-increasing Government prices the poor suffer The foodgrains thus procured, along with those that are imported, are intended for distribution through a public distribution system of ration and fair price shops, instituted to serve the poor. About 75 per cent of these ration and fair price shops, in fact, are located in urban areas, to allay some of the discontent there Thus, the rural poor are manifestly untouched by them, except when famine threatens But what of the urban poor? Most of them receive precious little benefit from these shops either. The foodgrains that they sell, after all, are superior grains and the prices that they charge are beyond the means of most of the urban poor. It is the middle classes and, perhaps, a small section of the working class that are placated by them.

One may legitimately ask what the poor do in circumstances of progressive "immiserization"; when the absolute number of poor people is growing, there is an increasing proportion of poor in the population and a worsening of the degree of poverty among those who are already poor? Kusum Nair could write of one part of India in the late 1950s

"The Eastern districts of U.P. are known generally for their greater poverty. In Ballia I discovered that one meal a day is a common routine. In the neighbourhood district of Basti, Harijans who work as agricultural labourers are so poor that the practice of eating gobraha (grains – barley, jowar or paddy – collected from animal excreta, and cleaned) is common. This is not considered repugnant; it is accepted as something ordained by fate.'.(3)

To assuage the pangs

The facts of poverty suggest that such practices will not have disappeared. Whether they will continue to be regarded as "ordained by fate" is another matter. The realities of poverty in another part of rural India, West Bengal, in the 1970s are described thus:

"... While foodgrain prices have slumped by between 50 and 80 percent in the past 24 months, the per capita income, even in money terms, has remained more or less stagnant for the overwhelming majority. They, therefore, do what is only to be expected in the circumstances: as food prices soar, they keep cutting down their consumption of cereals. The quantity of grain intake goes down, and down. In many households, after a time, cereals quietly disappear from the diet, and substitutes such as roots and grass, if available are commissioned to assuage of the pangs of hunger.'(4)

Such are the implications of the low level and the uneven distribution of income in India, which dictate the consumption patterns of the poor, and of the existing class structure and class nature of the Indian state, which perpetuate and increase pauperization.

The Chinese, reputedly, have a curse which runs: "May you live in interesting times.'. India in the 1970s is a society undergoing interesting times. It remains to be seen whether the curse that inheres in the increasingly antagonistic contradictions which centre upon poverty and the poor will be divested ultimately upon the heads of the exploiting classes.

1 B S Minhas, 'Rural Poverty, Land Distribution and Development Strategy," in Indian Economic Review, Vol. V, No. 1, April 1970

2 V M Dandekar and Nilakantha Rath, Poverty in India, Bombay 1971

3. Kusum Nair, Blossoms in the Dust London, 1961.

4 A M, "Calcutta Diary," in Economic and Political Weekly, Vol. 8, No. 48, 1 December 1973.

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HANDLOOMS OF INDIA

A Heritage as Old as Yesterday and as Young as Tomorrow

A YOJANA SPOT REPORT BY

JASBIR BATRA

Photographs : P. K. KAPOOR

FROM TIMES immemorial Indian handwoven fabrics have been known for their beauty, fine texture and excellence of design. Even today they are widely acclaimed abroad for their riotous colours and artistry During 1976-77 handloom products worth Rs 215 crore were exported The anticipated export figure for this year is Rs 250 crore

Handloom weaving is the country's biggest cottage industry, providing livelihood to the largest number of people next only to agriculture One person in 60 is engaged in handloom industry and the rhythm of the handloom can be heard in almost every village A large number of handloom weavers are women concentrated primarily in the North-eastern region where weaving is practised as a domestic craft

Almost one-third of the country's cotton textiles and all silk fabrics are produced by the handloom weavers During 1976 the handloom sector which has an aggregate of 3.8 million looms, including 300,000 silk, art silk, woollen and other fancy cloth handlooms and 3 5 million cotton handlooms, produced 2,300 *million metres of cloth against* the Fifth Plan target of 3,000 million metres. Over one-third of country's cotton textile exports in 1976-77 came from this sector and over 60 per cent of the ready-made export garments were made from the handloom cloth.

Left : **A Digaru-Mishmi woman weaving a shawl on a Loin loom. Women weavers are mainly concentrated in the north-eastern States. Tribal women generally weave their own apparel.**

Right : **A Kalamkari fabric being painted by a handloom craftsman from Vijayawada. The Kalamkari fabric is both printed and hand painted. This technique consumes plenty of skilled labour, therefore the fabrics are expensive.**

Today more money is being spent by the State Governments annually on the development of handlooms than was spent in a whole Five Year Plan two decades ago. If we add to this the monies paid as rebate to the weavers the figure becomes even more impressive. The total outlay on handlooms in the Fifth Plan is Rs 300 crores.

However, inspite of the rich heritage and various measures taken by the Government to popularise the Indian handloom products, both at home and abroad, the Indian handloom industry has off and on been passing through difficult times, chiefly because of the exploitation of the weavers Scattered as they are in all parts of the country, primarily in villages, far away from all advanced technological research our weavers do not get the necessary feed-back of the market conditions With the result they are unable to orientate their production to the ever-changing tastes and preferences of their consumers

The National Handloom Fair, recently held at the Exhibition Grounds in New Delhi from April 9–24 was part of the aggressive handloom products marketing campaign launched this year, with an all time high export target of Rs 250 crore

According to Mr. Mani Narayanswamy, the first Development Commissioner of Handlooms, the main purpose of holding this fair was to boost up our exports and to bring to the notice of the consumers at home the range and variety of our handloom fabrics, and to arouse their interest in the skills that go behind the weaving and designing of these exquisite fabrics which are as good today as they were in thousand yesterdays. By inviting weavers from all over the country to gather under one roof it sought to promote a healthy exchange of ideas

First of its kind in the country, the Fair was organised by the Development Commissioner of Handlooms on behalf of the Ministry of Commerce and in collaboration with the Trade Fair Authority

On entering the Pragati Maidan what immediately caught one's attention was the impressive array of 35 kinds of semi automatic and improvised looms in operation in different parts of the country These were the looms on which "poems in fabrics" had been woven by our traditional weavers Weavers of world famous Indian fabrics like Banaras silk, Patola of Patan, Chanderi, Jamdani, Pochampalli, tie and dye fabrics from Andhra Pradesh, Rajasthan and Gujarat were manning these demonstration looms to give the visitors an idea of the dexterity, labour and imagination that goes into the creation of such exquisite fabrics

Almost all states had set up their pavilions at the exhibition and were engaged in selling products as well as the image of handloom products in a well planned manner Twenty per cent rebate was given on the retail sale of these products, besides a special rebate. Daily free film shows were held from 5 30 to 6 30 p m at Shakuntalam Theatre A 45-minute Fashion Parade "Heritage of Handloooms" was held daily between 7 45 p m to 8 30 p m Organised by Swank India, a leading advertising agency, the fashion show attracted large crowds Lovely models, both men and women, displayed a variety of costumes made of colourful hand-woven fabrics Each piece was a conversation piece in itself The multi-media technique used in projecting this show was something out of this world While viewing the attractive ensembles displayed by the models, the audience also got the feel of the hands that created these exotic fabrics in their rustic dwellings

A skilled weaver employed in the Weavers' Service Centre, Chowkaghat, Varanasi.

Banaras Silk

Seeing Kapoor with his camera and me with my notebook 50 year old Abdul Mannan beckoned us to come to his loom and watch him weaving Banaras silk Banaras sarees are the most intricate expression of handloom weaving in our country Abdul's family has

Chennille Weft Cutting Semi-automatic Loom invented by the research section of the Indian Institute of Handloom Technology, Varanasi. Priced at Rs. 1600, the loom can simultaneously weave and cut the chennile weft in single operation. Though this can considerably reduce the cost of Chennile druggets, manufactured at Aligarh, no orders have been received for the manufacturing of this loom. This loom was awarded an all-India prize of Rs. 1500 by the Invention Promotion Board in 1965.

years of tradition behind them in weaving Banaras silk.

No one taught Abdul how to weave. By watching and helping his father at work he got the hang of the job when he was still in his teens. Same is true of his ten children. Now with the experience of 35 years behind him, Abdul is a master craftsman who can produce most delicate and colourful patterns enriched by the natural delicacy of silk and gold threads.

At present he is employed with the Weavers' Service Centre, Banaras and gets a salary of Rs 800 per month

"What made you seek employment with the Service Centre, especially when you are doing the same work i.e. weaving Banaras silk, at the centre as what you were doing in your house and in your own good time? Do you not feel bound by all sorts of rules and regulations at the Centre, used as you are to the freedom of working at home helped by your family members"? I asked Abdul

"Candidly speaking I took this job to get out of the clutches of the merchants of 'Kunj Gali' in Banaras" said Abdul Kunj Gali is a street where all leading dealers in Banaras silk are concentrated and where according to Abdul all weavers get a raw deal "A regular monthly salary seemed like a God-sent to me. No longer would I be at the mercy of these traders who were making fat profits out of my skill, without giving me the full payment of my labour".

"Moreover at home I was nothing more than an ordinary weaver My skill at the loom was taken for granted both by my family members as well as my friends Weaving Banarasi sarees has been our family profession for the past many generations At my house all the members of my family, (he has nine daughters and one son) including small children participate in the weaving of a single saree

"However, at the Centre my weaving skill is appreciated both by my superiors as well as my instructor colleagues. Without spending a single paisa I can experiment with new designs, new colour combinations and adapt traditional designs to new tastes I can be pretty bold with my creations as I do not have to worry about the high cost of raw materials or about the marketing of the finished product. All these aspects are taken care of at the Centre Moreover, at the centre not only do I get a chance to show off my ability, but also to train others".

Abdul was rather vehement abou the part played by the rich and in fluential merchants in the coope rative societies They corner bene fits of all official assistance at th expense of the poor weavers c Banaras who are estimated t number around 50,000.

Above A craftsman cutting the block for printing handloom fabrics.

Below : Phanimoy Kastha, Jamdani weaver from Weavers' Service Centre, Calcutta. Jamdani fabrics are usually woven in white or off-white colours and involve weaving of intricate floral designs.

According to him it takes seven days to a month to weave a single Banarsi saree, price of which can range anything from Rs 150 to Rs 2,000. However, an average weaver gets only 15 to 25 per cent per saree.

Imagine his whole family, consisting of 4 to 5 members, is engaged in weaving this single saree, sometimes even working upto 14 hours a day and at the end of all that what he gets for his labour is a mere Rs 20 for more than a week's work. The saree merchants sitting in their shops and without moving a finger make huge profits, ranging from 25 to 35 per cent out of the weavers' helplessness. Being poor, the weavers cannot wait to find right customers for their products and agree to accept the price offered by the dealer "Yes, the Government has now started extending credit facilities to weavers for procurement of raw materials and marketing and cooperative societies are also there. However, too much redtapism is still involved. Moreover the needs of the weavers are too many and the money given as loans too little", he said.

Despite the above tirade, Abdul's family is not willing to work at any other job howsoever lucrative it may be.

M. Veerappan

Patola of Patan

The art of Patola weaving is an ancient one dating back to 7th Century A.D According to a legend around the 12th century A D. several families of Patola weavers from Deccan were invited by King Kumarapala of Gujarat to come down to Patan in North Gujarat Out of the 700 weavers who came over to Patan at that time only two salvi (weaver) families are now carrying on with the proud profession of their ancestors.

A unique gem from India's rich and ancient heritage of fine fabrics, Patola silk is known for its gorgeous colours, attractive designs and durability. This lovely silken fabric has no reverse side. Both the sides have equal intensity of colour and design because of the 'Bandhani process' of tie-dyeing.

Till yesterday it was a wedding saree in Gujarat and had a good market in Indonesia However, at present there is no steady demand for Patola As compared to other silks its price is considerably high, ranging from Rs 2500 to Rs 4500, and much beyond the common man's reach. Today the sarees have to be made to order.

To Kantilal Salvi, who sat before a primitive loom made of wood and bamboo strips moving a bamboo shuttle to and fro through warp threads, "Patola" weaving is nothing but accurate juxtaposing of warps and wefts of similar colour. The process is undoubtedly laborious and time-consuming but with practice one acquires a high degree of skill and dexterity

'Heritage of Handlooms', a fashion show was held at the Fair. Lovely models displayed a variety of costumes made out of colourful handloom fabrics.

Kantilal is the younger brother of Kerhavlal, the winner of the 1965 National Award for Master Craftsman. He is the only weaver at the Fair who is not employed with any Weavers' Service Centre. He was invited to attend the Fair by the Gujarat Industries Emporium. His sons, one of them had recently done his B. Com. and was assisting his father at the loom, had also learnt the art of Patola weaving and were keen to keep the family craft alive However, due to uncertain demand they had launched into other businesses too

According to Kantilal it takes two weavers working together for a month to weave one Patola saree, depending of course on the intricacy of its design and length The designs (bhat) are essentially traditional and flowers and human figures occur commonly in Patola patterns In order to avoid wastage of thread the loom is prepared for making three sarees at a time Though generally woven in saree length, the technique of Patola weaving has now been extended to scarves, borders, table cloths etc The raw material is pure silk thread from Mysore In olden times vegetable dyes were used. Their colouring was so fast that it was said "The design laid in Patola may be torn, but it shall never fade" Today chemical dyes have taken the place of vegetable dyes, bringing brightness and variety of shades to the Patola.

Phanimoy Kastha of the Weavers' Centre, Calcutta weaves Jamdani sarees with extraordinary skill His nimble fingers weave intricate floral designs on what looks like the simplest possible loom. Wall hangings, furnishing materials, shawls, lungies, durries and carpets were some of the other items being demonstrated by the weavers on the looms.

Also on display was handloom silk cloth printing based on the 16th Century Kalamkari (hand-painting) and wooden block technique. Some of the old Masulipatam (Andhra Pradesh) designs, the joyous 'Tree of Life' being printed right before your eyes were a joy to behold. The Weavers' Service Centre, Madras is also reviving the old

'Kalahasti' prints depicting stories from Mahabharata and Ramayana

Weavers' Service Centres

Numbering 15 at present these centres occupy a pivotal position in the development of the handloom industry in the country. They have done commendable work in designing, printing, promoting new weaving techniques, marketing a in adapting traditional motifs contemporary needs and fast chan ing fashions. Besides the abov they have also provided guidan and training to weavers and dyers the improved and scientific metho of production The Centres wo in close collaboration with the A India Handloom Fabrics Coop

Above . Vertical looms are generally used for weaving durries and pile carpets. The specialty of this loom is that no shuttle or sley is required for weaving. The weft threads are inserted into the warp by hand and beating of picks is done by Panja.

Below : A tribal weaver demonstrating his skill at the loom to interested visitors at the Fair.

rative Society and the Handicrafts and Handlooms Export Corporation.

Apart from publicising a dazzling collection of silk and cotton handloom sarees, dress and furnishing material, chiefly the work of the Weavers Service Centres, the most significant projection of the first All India Handloom Fair are the plans for launching "a new handloom era" in the country. These include modernisation of looms; training of weavers in improved techniques; development of cooperatives through Handloom Development Corporations; strengthening of primary and apex cooperative institutions, both for production and marketing; production of Janata sarees and dhoties for weaker sections; setting up pre-loom and post-loom processing facilities; substantial expansion of credit through the Reserve Bank of India and commercial banks; special assistance through National Cooperative Development Corporation for increasing spinning capacity, marketing and processing by cooperative institutions; programmes for increasing supplies, improving quality and better distribution of yarn, dyes and chemicals; diversifying production base and increasing use of multi-fibres, research and development through strengthening and expansion of the two Indian Institutes of Handloom Technology at Salem and Varanasi and the Weavers' Service Centres.

M. Veerappan

The new strategy also aims at augmenting the production base for exports; countrywide expansion of sales outlets and good publicity programmes, including fairs and exhibitions for promoting consumer preference for handloom products.

In a world where traditional crafts are dying, the Handloom Fair is the first step towards raising the image and potential of the handloom sector both in terms of earning and employment.

According to Dr N.P Seshadri, Joint Develoment Commissioner, Handlooms the fair was undoubtedly a great success Average attendance per day at the Fair was two lakhs and on holidays three lakhs Average sale per day was Rs 15,000 Even a State like Nagaland which had a very small pavilion sold a number of its products □

HANDLOOM INDUSTRY IN DELHI

Delhi is one of the important centres for handlooms in the country and the handloom weavers of Delhi are renowned for their craftsmen-ship. To assess the present status of the handloom industry in Delhi, the Delhi Small Industries Development Corporation (D.S.I.D.C.) carried out a survey of handloom industry in the Union Territory of Delhi in 1974.

According to the findings of the Survey there are 500 handloom units in the Union Territory of Delhi. However, the investigation team could identify only 451 units. Thus the coverage of the survey is 90.2 per cent of the total number of units. The main concentration of handloom units is in Kingway Camp, Tri Nagar, Shahadra and Subzi Mandi.

A General characteristic feature of the the handloom industry in Delhi is that artisans carry on their work throughout the year and deal in the manufacture of complete items.

The analysis of 451 sample units of handloom reveals that as many as 301 units (66%) are proprietory establishments, 101 units (22.4%) are working under cooperative societies, 37 units (7.11%) are of family ownership and only 12 units (2.51%) are working on partnership basis. The units covered in the survey have been divided into two categories i.e. (1) manufacture units and (2) manufacture-cum-dealer units. The former have been defined as being those units which are working on contract basis (job work) while the latter are the units which are selling their own products.

Employment

The 451 handloom units covered in survey provide gainful employment to 4193 weavers that is 196 by the manufacturer units and 3997 by the manufacturers-cum-dealer units. Out of these 2980 or 71 per cent are the hired labour and the rest i.e. 1213 or 29 per cent are the self-employed artisans. The hired workers in handloom industry in Delhi are mostly engaged on piece rate system. The rate of payment varies from 60 paise to 90 paise per metre depending upon the size and the quality of the cloth woven by them. For the female hired workers the labour charges vary according to the quality of the cotton yarn. Most of the hired labourers 1985 or 66.6 per cent are paid less than Rs. 10 per day, 900 or 30.2 per cent are getting from Rs. 10 to Rs. 14.99 per day. While the rest i.e. only 95 or 3.2 per cent of the artisans are paid from Rs. 15 to Rs. 19.99 daily.

In case of the self-employed artisans, 537 or 44.3 per cent are earning from Rs. 10 to Rs. 19.99 per day, 393 or 32.7 per cent of the self-employed artisans earn daily upto Rs. 9.99 while 166 or 13.6 per cent are earning above Rs. 30 per day.

A very wide range of handloom articles are produced in Delhi i.e. Bed covers, bedsheets, dressing materials, furnishings, dusters etc. The sample units of handloom industry in Delhi covered in survey produced articles worth Rs. 8.91 crore during 1974 (manufacturer units Rs. 37 lakhs and manufacturer cum-dealer units Rs. 8.5 crores). On an average the production per establishment came to Rs. 1,97,495.

The most important and basic raw material used in handloom industry is cotton yarn. The prices of cotton yarns fluctuate from time to time depending upon the demand and supply. The other raw materials being used in the industry are simple and fancy silk yarn, woollen waste, colours and chemicals.

The survey reveals that most of the establishments procure cotton yarn from the retail markets in Sadar Bazar and Fateh Puri. It has been reported that the cotton yarn in the wholesale market is available at exhorbitant rates which is beyond the reach of the poor artisans.

Most of the artisans of handloom industry in Delhi are using traditional designs. This is partly due to the fact that the artisans, being illiterate, do not have much appreciation for new designs and partly because they are not being offered facilities of training and orientation to use new and fresh designs from time to time.

Most of the units are found dependent upon their own sources of income. Out of 451 establishments covered in survey only 41 units could get loans from Banks and other financial institutions.

Marketing of fabrics is a vital problem of the Indian handloom industry. The study has revealed that 261 sample units retail themselves exclusively, whereas 269 units follow the channel of wholesalers and retailers in marketing the products, there are certain establishments who follow a combination of both the methods e.g. direct sales as well as sales through wholesale and retail dealers. The total turnover of the sample handloom units in Delhi is estimated at Rs. 9.66 crores per annum. □

Yojana Quiz

1. Why is yawning infectious?
2. Why can we put out a candle by blowing?
3. How does a bird know how to build its nest?
4. What is Prize Court?
5. What is mare's nest?
6. Does magnetism wear away?
7. What class of telegram is known as Human Life Telegram in India?
8. Sapphires of a very clear blue colour are obtained in:
   (*a*) Kashmir
   (*b*) Orissa
   (*c*) Karnataka

ANSWERS

1. It is a very well known fact that one human being can effect another by what is called suggestion. One person sees another afraid he becomes afraid. Suggestion is more powerful, the nearer the suggested thing is to the needs of life. That is why yawning is powerfully conveyed by suggestions—because it suggests the most urgent need of all life, which is to breathe.
2. By blowing the temperature of the candle is lowered to a point below which the stuff of the candle and the oxygen of the surrounding air are capable of combining with each other.
3. It is by the power of instinct.
4. A Court of Law set up in time of war to decide whether a ship and its cargo, captured by the navy is a lawful prize or is an enemy property or a cargo is contraband, they are sold and the proceeds thereof are distributed among all members of the navy at the end of the war.
5. When a person has made what he thinks is an interesting discovery, and it turns out to be nothing after all, we say, he has found a mare's nest. The allusion is to Mara, a kind of demon, who had a nest filled with wonderful treasures. Mara also gives his name to nightmare.
6. Every magnet, whether natural or artificial, tends, in time, to lose its magnetic power owing to a gradual rearrangement of the molecules composing it. However, a horseshoe magnet can be preserved by laying a bar of soft steel known as an armature, across its two poles.
7. This class of telegram receives priority in transmission over all express telegrams in case of accidents, serious illness or death of a person.
8. (a) Kashmir at an altitude of 14,000 ft.

Quotation Box

I believe both in the carrot and the rod.

—Morarji Desai

It is only because of the degradation of the environment that each ordinary decision of a judge shines out like a beacon of special virtue.

—N.A. Palkhivala

I believe we've given the fairest election Pakistan has ever seen.

—Z.A. Bhutto

Gandhian socialism is not an idle dream It is a practical, scientific programme of socio-economic development best suited to the needs of our people.

—B.M. Bhatia in the Statesman

Sovereignty is indivisible. We can't have two borders for any country.

—President Sadat of Egypt

He (President Carter) just joined politics, and I am senior to him.

—President Idi Amin of Uganda

We maintain the freedom to choose our paths, our forms of Government and also our patterns of development. We offer no precepts to each other, but we are united by our sense of inter-dependence and shared destiny, born out of similar history and legacy. We are convinced that we have common interests in peace, stability and a more just world order.

—Atal Behari Vajpayee

A New Perspective To Family Planning

K RADHAKRISHNA MURTY

RECENT DEVELOPMENTS in India have demonstrated that a lop-sided emphasis and a mis-guided enthusiasm to Family Planning may lead to disaster not only for the promoters themselves but also for the very strategy of Family Planning itself In the wake of the trauma of the emergency and the epic proportions of the electoral battle, a thorough review of the startegies and tactics of population control in general and Family Planning in particular is bound to take place and indeed ought to take place It is in this context that an *expose* of the interrelationship between the concepts of social development as a goal and population control as a means appears essential For, it would seem that the connection between the two concepts have somehow been missed by our policy analysts and makers

The concept of societal development is frequently taken in the restrictive sense of economic development Development is fundamentally a process of institutional change. As such, it is dependent on the reciprocal effects of a wide spectrum of economic and social variables Despite a satisfactory economic growth in the recent past, the social conditions in most of the developing countries including India had considerably deteriorated This is not appreciated by social analysis of the present day In its turn, this lack of appreciation is primarily due to the absence of widespread understanding of the need for a unified approach to development analysis and planning, and to an inappropriate assimilation of social factors of development in the total strategy of develoment planning. Development planning should directly involve attempts to promote economic and social changes by modifying existing institutional structures and policies or by initiating new ones. Unlike the developed countries, in the case of developing countries, development cannot be successfully launched without having fulfilled some preliminary conditions pertaining to changes in mentality, institutions, attitudes and social relations Development should be focussed on the well being of the broad masses of the people and economic growth has to be viewed and utilised as a means for achieving the desired social objectives and the planned social order. In bringing about that preferred style of development leading to a healthy social order, it is necessary to take into full account the peculiar situations and problems that plague the developing countries such as mass poverty, unemployment and rapid population growth Further there is also need to replace social structures and institutions that were traditionally anti-developmental with a view to creating new or better structures and institutions that would support and enhance the development effort All this would require integrity, imagination, boldness and dedication on the part of planners and political decisionmakers.

This is not to say that while emphasising social development, the importance of economic growth should be reduced to a secondary objective Economic activities have to grow along with social development The indicators for social develoment are. population, health, housing, nutrition. education, employment, and social security etc It is a recognised fact that the concentration of mass poverty was mainly in rural areas Even the poor in urban areas are better-off than the rural poor It is necessary to adopt certain specific measures including greater provision of economic in-puts in rural areas to establish physical and social infrastructures. The whole question of making employment opportunities conistent with the expectations of the youth, and at the same time. encouraging youth to adjust to the prevailing situation should be attended to It is also necessary to have a second look at the contents and quality of education to relate them more meaningfully to the requirements of development. It is not only a question of politial will to take necessary legislative, executive and administrative measures designed to successfully attack povery but also to the question of the most effective way of planning the attack itself. New concepts and models of planning are required to ensure socio-economic growth with social justice and progress.

Population and socio economic development are closely interrelated Demographic trends are affected by socio-economic development and, in turn, affect economic growth and social progress. It is generally recognised that the ultimate aim of any population policy should be to affect all aspects of development in order to bring about an improvement in the quality of life of every individual. Thus population policy should aim at reducing morbidity and mortality, reducing unemployment, raising the levels of living of all communities and generally ensuring socio-economic progress In many developing countries, India being no exception, population policies were evolved and identified solely with Family Planning or population control policies But population policy should be more comprehensive and address itself to problems posed by the high growth rate of population That means policies should be more "population-responsive" rather than "population-influencing"

In industrially developed countries, the birth and death rates have declined, almost simultaneously with sufficient economic and social development. The rise in the levels of living in the areas such as education, health, nutrition and housing have been the basic factors responsible for the dlecine in death and birth rates in the developed countries In India over the years a considerable decline in mortality is achieved in the absence of economic and social development owing to large scale diffusion and adoption of medical facilities But there is no commensurate decline in the birth rate and this is directly due to the overall underdevelopment of of the society. Although Family Planning programme was initially a success thanks to the temporary popularity of the contraceptive services, they did not in most cases succeed in either sustaining these

(Contd. on Page 38)

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V. S. SATYAPRIYA

KARNATAKA

Some Aspects of Agricultural Labour

OF LATE, the economic condition of the agricultural labourers (AL) and the small and marginal farmers who form a major segment of the 'weaker' or 'poorer' section of our society has attracted considerable attention of policy-makers. This stems from a general belief that the benefits of development have accrued more to the rich than to the poor. The suggested approach that the overall growth of the economy through huge investments mainly in non-agricultural sector will enlarge employment opportunities and help to absorb a section of the agricultural workers, does not seem to hold much hope judging by past experience. Also, various socio-economic measures such as implementation of land reforms, bring in additional acreage under irrigation, provision of shelter to landless labour, fixation of minimum wages etc., have not proved very effective.

Magnitude of the Problem

As a prerequisite to policy decisions a proper and fuller understanding of the magnitude of the problem of the weaker sections is necessary. It also calls for frequent studies of their problems and conditions to maintain a level of social justice. In the following paper an attempt is made to examine the growth in AL, the various factors such as growth in crop acreages, irrigation etc which affect the employment of AL and the movement of wages of AL in the context of appraising the changes in their living standards.

Agricultural labourers formed a little over seven per cent of the State's population in 1961 and increased to 9.28 per cent in 1971. Separately for rural and urban areas their proportion increased from 9 03 per cent and 2.03 per cent in 1961 to 11 43 per cent and 2.57 per cent respectively in 1971. In absolute terms, in the course of a decade, the number of AL increased by 9.56 to 27 17 lakh in 1971. That is there was an increase of 54.26 per cent (71 63 per cent and 53 17 per cent separately for urban and rural areas respectively) in the number of persons who depend on wage employment in agriculture for their livelihood. Further, the increase in the number of male AL was quite considerable as compared to that of female AL. While male AL increased by 94 per cent female AL increased by 14 per cent.

In view of the non-comparability of the 1961 and 1971 figures, it is difficult to place full faith in the magnitude of increase revealed by the above figures. However, it appears safe to conclude at least as far as Karnataka is concerned, that during the course of the past decade there has been no decline in the proportion of population depending mainly on agricultural wage. Indications if any, are to the contrary.

Having observed that there has been no decline, but a possible increase in the number of AL it is interesting to look into the factors affecting the employment conditions of AL. The net cropped area in the State increased by 0 471 lakh acres from 252 75 lakh acres in 1960-61 to 253.22 lakh acres in 1970-71. Gross cropped area recorded an increase of 7.263 lakh acres from 261.63 lakh acre in 1960-61 to 268 89 lakh acres in 1970-71. That is, while net cropped area in the State showed an increase of 0.19 per cent, the gross cropped area increased by 2.78 per cent. This, however, is not specific to the years chosen as these two years are considered to be agriculturally normal years. On the side of irrigation, the gross irrigated area in the State increased by 38.77 per cent from 24.13 lakh acres in 1960-61 to 33 486 lakh acres in 1970-71. However, as a proportion of gross cropped area, gross irrigated area remained around 12 per cent for the State as a whole. Intensity cropping, measured as a percentage of gross cropped area to net cropped area, showed a nominal increase from 103.51 in 1960-61 to 106.19 in 1970-71. Extension of irrigation, however, does not seem to have had much impact on the intensity of land use.

From the foregoing it is evident that relative to the growth in AL, the increase in the extension of area under crops was not considerable. While AL increased at the rate of 4 4 per cent annually (6.3 per cent in the case of male AL), the gross cropped area increased at the rate of less than one per cent. That is, the demand for hired labour does not seem to have increased to any appreciable extent because of extension of cropped area and irrigation relative to the increase in the supply of labour.

The only other source of an increase in the demand for hired labour is from the adoption of improved methods of crop production, basically of a labour intensive nature. However, no information exists on the changes in the demand for hired labour as a result of improved methods of cultivation. It is only possible to indicate whether cultivation practices have improved and if they have, to surmise that demand for AL must have gone up. This can be done by using the index of agricultural productivity/production as a proxy for adoption of improved methods of crop production. The index of agricultural production (with the triennium ending 1961-62-100) rose to 125 3 in 1967-70. While food grains production increased by 45 8 per cent, non-food grains production showed an increase of 6 1 per cent. Similarly, while productivity index of all commodities rose by 39.3 per cent, that of food grains increased by 56 per cent, and non-food grains by 19 per cent. The increase in productivity and production of food grains appears to be largely due to the adoption of improved cultivation practices which are generally be-

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lieved to be of a labour intensive nature.

Besides employment, the other factor on which depends the economic condition of the AL is the wage rate at which they are employed. It may be mentioned that the wage rates for 'male field labour' increased at the rate of 5.4 per cent annually between 1960-61, and 1971-72. However, in a period of rising prices, an upward movement of wage rates (unemployment remaining the same) by itself does not imply improvement in the living conditions of labour. Though an appropriate method of to examine the changes in the living standards is to compare changes in the cost of living of wage earners with the changes in their total earnings (income), due to paucity of data, attention is devoted to an examination of the daily wage rates rather than total earnings as the trends in real wage rates would at least partly reflect the changes in the living standards. Using the consumer price-index for agricultural labourers, it was found that real wage rates of agricultural labourers in the state declined by about 10 per cent between 1960-61 and 1971-72. Thus it appears that though wage rates in money terms showed an increase they showed a decline in real terms. However, between 1966-67 (the year when the new technology in agriculture in the form of HYV crops was introduced on a large scale in the State) and 1971-72 there appeared a marginal increase in the real wage rates of agricultural labourers

It is possible, as mentioned earlier, that the adoption of new or improved technology in agriculture resulted in increased wage employment in agriculture resulting in increased total earnings. In the absence of data on unemployment and underemployment (which is more relevant as far as the agricultural sector is concerned) an attempt could, however, be made to arrive at the magnitude of the problem of unemployment and underemployment by using consumer expenditure data of the National Sample Survey. That is, the measure of under consumption is taken as a measure of prevailing underemployment It was estimated that an annual per capita expenditure of Rs 180 (in rural areas) was necessary in 1960-61 to have a desired minimum level of living. The total earnings of an agricultural labourer (taking 300 as the number of working days which is obviously on the higher side) was Rs. 203 in 1960-61 which was slightly above the desired minimum consumer expenditure. In these terms during 1960-61 nearly 34 per cent of the rural population (6.23 million) in Karnataka were below the minimum level of consumption and AL formed about 9.03 per cent (1.66 million) of the rural population. In 1970-71 the proportion of rural population lying below the desirable minimum consumer expenditure was nearly 63 per cent or 13.901 million. (It was 55 2 per cent in the case of the bottom 10 per cent of the cultivating households and 66 per cent in the case of the non-cultivating wage earners) The proportion of AL on the total rural population was 11 43 per cent (2 534 million) in 1970-71. Thus it appears that the quantum of employment also did not increase considerably as is reflected in the level of consumer expenditure.

Thus the picture of the agricultural labourers does not appear to be any brighter. Enactment of minimum wage legislation or even its enforcement is not likely to solve the problem of AL against a background of less demand for and more supp of such labour and of the absen of unionisation of AL. The increa in the number of persons dependi on agriculture for wage emplo ment does not appear to be an ou come of increased employment o portunities in agriculture but appea to be in voluntary shift into th occupation. There is therefore t problem of providing the means production including either lar or employment. Redistribution land by imposing a ceiling on th holding has been thought of as o of the remedial measures. While is quite appropriate to impose ceiling on larger ownerships as *redistributive measure its limite* unility in solving the problem is we known. What is needed is both rise in wages and volume of emplo ment This is possible only throug a well defined and properly impl mented plan for agricultural deve lopment and a positive programm for non-agricultural employment i rural areas □

PROCESSING OF MINOR SEEDS CAN SOLVE OIL SCARCITY

At least a million tonnes of oil can be produced for industrial purposes if oilseeds like nigerseed, mohwa, salseed, neem, karanj and palasa – available in abundance in India – is procured and processed on a commercial basis. This would to a very great extent mitigate the current shortage of edible oils in the country.

Large quantities of nigerseed and mohwa seed available in the forests of Andhra Pradesh go waste at present as only a small portion of this valuable oil resource is utilised by the Girijan Cooperative Corporation of Andhra Pradesh. A number of tribals make a living by gathering these seeds

While the country spends crores of rupees on vegetable oils import, barely 20 per cent of the minor oilseeds are collected and crushed. Processing of these minor oilseeds can easily give a boost to our rural industries generating further employment potential in the tribal areas

While the demand for oils and fats for edible and industrial purposes has doubled in the past few years, production of oilseeds has remainedastatic. As a result the country has been experiencing violent fluctuations in edible oil prices

Many agro-wastes like mango stones, brewery grains, coffee residues, spent silkworm pupae, seeds of tomato, melons, orange and grapes can be collected and processed for oil as the necessary technology is indigenously available.

Soyabean and sunflower – two new comers – yield good edible oils and have plenty of scope for expansion in their acreage. Other problems that need to be tackled are bad storage and inefficient drying which result in deterioration of quality and lower oil yield. According to experts, at least eight per cent of oilseeds perish due to bad storage

Andhra Pradesh, a major oilseeds producing state, has plans to cultivate oilseeds on a large scale in the command areas of Nagarjunasagar and Pochamped irrigation projects. At present oilseeds are cultivated only in rain fed regions An agency to centralise production, procurement and distribution as also to undertake research is essential. □

GUJARAT

RAMAN PATEL
Ahmedabad Correspondent

People's Courts
—An Experiment in Costless Justice

THE GUJARATI saying 'wealth, woman and land are the root causes of all disputes' has been proved more than correct in the Chhota Udaipur and in Gujarat. Wine was another factor of dispute amongst the tribals in this area A Gandhian worker Harivallabh Parikh, inspired by the teachings of Mahatma Gandhi, decided to camp in and serve among the rural areas particularly the poorest – the "Daridranarayans." He made it a mission of his life to bring peace and prosperity amongst the tribals

Today, after about three decades of self-less service, his word has almost become law and he is revered deeply by the tribals. This is amply evident to anyone who happens to witness the procedure of what is called "Lok Adalat" (People's Court). This court is, perhaps, very much different from what is generally understood by the term in the context of communism

Tribals, from villages far and near, and attired in their colourful but dirty and rags like costumes, throng on a prescribed day to the Rang Niketan Ashram, to attend the People's Court, which is held once a week All kinds of feuds and disputes, social, economic, financial and others are brought to the one man court. He hears both the sides, patiently, some times hearing runs into hours, but he hears them so that both the parties are satisfied.

The hearing over, the Judge, both openly and in private, uses all his power of pursuasion and past experience, to bring about an agreed settlement between the parties concerned. He takes a consensus of the assembly of tribals present on the occasion and delivers a judgement which is at once acceptable to all and particularly to the concerned parties. They leave the place satisfied with the verdict. What is more important is that they harbour no bitterness against each other.

The Judge, after the verdict is announced, gives a piece of jaggery, which is kept handy in a trough, and the warring parties, place it in the mouth of each other, signifying that

Much stress is laid recently on providing free legal aid to the weaker sections of the society, so that they are spared of heavy expenditure on legal consultations and lengthy court procedures. Often, the money for these is raised through loans at exhorbitant rates of interest from money-lenders and the like. During the last thirty years or so in Gujarat a Gandhian worker has, single handed, worked out an entire system of justice in his own way to relieve the public of this malady.

the relations between them will, in future, be as sweet as jaggery and that all bitterness will be forgotten for ever.

Take for example, an instance of how fair and practical is the system of delivering justice It was a case of dispute, between an Adivasi young man and his wife with a child The tribal young man had married another lady and therefore, the first wife had left his home and was not willing to go back again, even after a lot of pursuasion. The husband wanted her to stay with him, for the simple reason that he did not have the resources to pay for alimony etc to the first wife. The judge entrusted a few Panchas (Local leaders of the community) to fix the amount of penalty. This, they did, after consultation with the young man but even this amount was beyond the capacity of the man. So, the question of deciding the final figure of penalty was left to 'Bhai' as Shri Parikh is generally addressed He announced a figure which was accepted by all. With a loud slogan of "Mahatma Gandhi Ki Jai" the dispute was solved A brief judgement was written down and read out. Both the parties put their thumb impressions and the years-old dispute was solved at no cost to either party.

"What about the child"? I inquisitively enquired of the judge. 'Bhai' explained the local tradition. A divorced tribal mother would rear the child till he was able to eat, drink, and walk and then hand over to her former husband. It was the responsibility of the mother to inform the father of the child in case of sickness, but she will be absolved of any responsibility if he died This age-old social custom is in the interest of the women folk. 'Bhai' explained, the divorced wife would remarry soon The child of the former husband would have no rights on the land or the property of the second husband or the step-mother But the child would continue to enjoy his right to property if handed over to the father A grown up child would pose no problem for the father. "This reflects the robust, practical common sense of the tribals" remarked 'Bhai'

People's Court is synonymous with fair justice. Even police authorities direct the tribals first to go to People's Court and solve their problems and not to come to the Police and Courts for prolonged litigations A number of cases which were evading solution in law courts for months were solved in minutes in the 'People's Court. This is indicative of the measure of confidence, the authorities and the tribals have in the fairness of justice, delivered at the 'People's Court.

There is a social dimension also to this problem i.e, the winning over of the tribals from the habit of liquor. Practically, all the tribals in the area were addicted to drinks. Twenty five years of sustained social work, has succeeded in making the tribals realise that liquor is their first foe and that their lot will not improve so long as they do not give up liquor, generally manufactured locally. The majority of them have vowed not to touch liquor. Once again, the Gandhian way of pursuasion, and education accompanied by love and sharing their sufferings has proved to be the surest way to bring about social reforms.

Photo · ICAR

How Nutritious Are Mangoes

DR. ZAKA IMAM

MANGO IS INTIMATELY connected with Indian folklore. In the early Sanskrit literature mango is referred to as *Amra*, and has held an important place in Hindu mythology and religious observances During the medieval period, we find a detailed account of its quality, varietal characteristics etc in Ain-e-Akbari, a treatise written in the reign of Akbar around 1590 A D The noted Persian saint and Sophi poet, Amir Khusroo wrote in its praise·

The choicest fruit of Hindustan
for gardens' pride the mango is sought
Ererip-e, other fruits to cut we ban,
But mango serves us, ripe or not.

Ghalib the noted poet sang eloquently in admiration of the mango Even otherwise, it is an important source of foreign exchange for it fetches a good price abroad

With the onset of mango season, which varies from April to August in different parts of our country, village women and urban housewives alike take active part in making pickles, ketchup, jams as well as a variety of other delicacies made of mango for use in lunch, dinner and breakfast

The number of varieties grown in India is fairly large, each variety possesses a characteristic taste, flavour, and consistency of pulp which determine its popularity and price in market. A desirable table variety is one which has a pleasant, sweet luscious, sub-acid, appetising taste and a good flavour In addition, small seed, firm and fibre-free pulp and good keeping qualities are also greatly desired. For culinary preparations like pickles and ketchups, mango of a sour variety is generally favoured. Some of the famous Indian varieties are *Alphonso* and *Pairi* (Bombay) *Fernandian* and *Mankurad* (Goa), *Langra, Lucknow Safeda, Dasheri, Fajri, Samar-e-Bahisht Chausa* (U P) and *Malda* (W.B) and *Himauddin, Alampur Benishan* (South India) Of these, *Alphonso, Dasheiri* and *Langra* are the most popular varieties

Generally some local varieties are more popular in different parts of India viz *Bombai, Zardalu, Langra, Gulab Khas, Gopal Bhop* in Bihar: *Mulgao*, Bangalore (known as *Totapuri* in Bombay market), *Neelam, Rumani* in South India, *Pairi, Kavaji Patel* in Bombay; Shendriva in Poona; Rajapuri (Gujarat) etc. Among the famous large size mangoes are *Hathi Jhool* of U.P and *Jehangir* of Madras both of which possess good table qualities.

Pulp consistency, taste and other characteristics of *Langra* and *Dasheiri*, leading varieties, are as follows: *Langra* : Colour of skin tends to remain green when it is ripe, pulp is creamy, juicy, plentiful and fibreless with a thin stone. *Dasheri* : Elongated and thin in shape, pulp is fibreless, juicy, sweet with a delicate and excellent flavour.

A fruit which is so greatly admired for its palatability, is generally little known to people for its dietary value as represented by sugar, protein, vitamins and mineral contents. Average values for proteins, carbohydrates, fat, minerals, vitamins (A, B2 and C), which are among the essential dietary requirements for a healthy body, are present both in unripe and ripe mangoes in its edible flesh part, as shown in the table :—

The sugar and acid contents vary very widely with variety and stage of maturity. The carbohydrates are principally sucrose, glucose, fructose and maltose *Dasheiri* is one of the richest in sucrose content while alphonso and Lucknow Safeda are among the most rich in fructose and glucose contents respectively. A high acidity is an undesirable quality in ripe mangoes for pickle purposes. As the fruit ripens, the acidity gradually decreases with a steep fall at the fully ripe stage The unripe mangoes of pickling variety contain citric, mallic, oxalic and succinic acids; the citric being the most abundant. Analysis of some 22 varieties from different parts of India has shown that the acid content (as mallic acid) in ripe fruit range from 0 18 – 0 56 per cent. Besides protein contents (average 0.6 per cent in pulp) which is very low in mango, certain free amino acids, such as aspartic acid, gultamic acid, alanine, glyoine, methioine, leucines and possibly eystine and gamma butyric acid are also found The amino acids are the constituent

	Unripe mango	Ripe mango
Moisture	90 00%	86.10
Protein	00 70%	00 60%
Fat	00.10%	00.10%
Carbohydrate	08.80%	11.80%
Calcium	00.04%	00.01%
Phosphate	00 87%	00 20%
Iron	4 5mg/100g	0 3mg/10g
Vitamin	150 i.u.*	48.00 i.u.
Vitamin B	0.03 mg/100mg	0.05 mg/100g
Vitamin C_2	3 mg/100 g	13 mg/100g

*i.u , for international unit, used to measure vitamins.

Dr. Imam is Assistant Editor, Science Reporter.

A blooming mango nursery (Photograph-ICAR).

parts or bunding blocks of proteins, which we generally get from vegetable or animal source.

Vitamins, A and C are rich in ripe mangoes, the vitamin contents vary with variety and stage of maturity Vitamin A content of some of the important mango varieties (in i.u/g) is as follows *Langra* (Varanasi) 32.2, *Langra* (Calcutta) 24.0, *Dasheiri* (Lucknow) 51 5, *Alphonse* (Bombay) 161.1 *Raspuri* (Mysore) 78.8, Badami (Mysore) 100.9, the highest value reported is 259.4 i.u./g in *Mankurad* (Goa). Other vitamins like thiamine (B1), riboflavine (B2) niacin and ascorbic acid vitamin (C) vary in their contents in different varieties; the range of some of these is high in some varieties. Langra contains an exceptionally high vitamin C content (176 mg/100g) which is highest in the skin and the flesh adhering to it.

Mango is otherwise a poor source of folic acid. Pigments such as carotenoid are also present, which increase in concentration during ripening. These pigments are converted into vitamin A in liver. Besides minerals shown to be present in mango in foregoing table, mango also contains magnesium, sulphur, copper, iodine and potassium. With so much under one skin, mango becomes nature's vitamin and mineral capsule It is therefore not surprising that the mango is considered to be so invigorating, refreshing, and fattening Being a rich source of Vitamins A and C, it is also useful in heat-stroke and apoplexy □

(*Contd from page 3*)

Exports and The New Import Policy

small scale sector, should have no difficulty in marketing their products abroad and export houses should develop a long term and abiding relationship with their supporting manufacturers. However, keeping in view the growth of exports the minimum export performance for recognition as export houses has been raised to Rs. 1 crore in respect of select export products and Rs. 5 crores in respect of non-select products.

Special dispensation has been made in the policy in order to enable the small scale units and units engaged in cottage and village industries to export their products. In the case of small scale manufacturers the minimum limit for export performance for the purpose of recognition as an Export House has been reduced to Rs. 25 lakhs for select products and Rs. 2 crores for non-select products. In case the small scale unit is unable to show exports even to this reduced extent, a further facility has been given that a number of small scale units can join together and set up a consortium of their own provided the total export performance of the principal units of the consortium is up to the required extent of Rs. 25 lakhs or Rs. 2 crores as the case may be. If a number of small scale units joining together cannot reach an export performance of Rs. 25 lakhs, they can still be given the status of an "export group" if the value of their exports is Rs. 10 lakhs with a condition that it will increase by Rs. 5 lakhs each year till it reaches Rs. 25 lakhs. Such export groups are given some of the facilities available to export houses. If the export group of this type has exported goods made in cottage and village industries sector, it will be treated as a full-fledged export house from the very beginning.

In formulating the new policy, the needs of other sections of general public and instructions have not been ignored. Provision for free imports has been made for anti-cancer and life-saving drugs, the requirements of blind people, requirements of medical practitioners, hospitals and medical institutions, drugs for preparation of Ayurvedic and Unani medicines and homoeopathic medicines. Similarly, books on science, technology and specialized subjects, of which Indian prints are not available are allowed to be imported freely. Import of certain materials and instruments required by artists is also allowed liberally. Facilities for imports by Research and Development institutions have been enlarged. All recognised Research and Development units are allowed to import without a licence, raw materials, components, instruments, equipment, etc. up to Rs. 5 lakhs per annum.

The new import policy maintains a delicate balance between the import requirements of the industry and the interest of the indigenous producers. While every effort is being made to promote exports by providing the necessary inputs at competitive prices and within the time frame required by the exporters, the interests of indigenous producers have also been kept in view. While we emphasise export promotion as a means for attaining self-reliance, we have also to enlarge the area of import substitution, for reaching the same goal. The new policy aims at reaching our objective of self-reliance with faster speed and greater faith. It is based on the philosophy of the "Trust in The Man..' □

No society can possibly be built on a denial of individual freedom

—Mahatma Gandhi

Books

The Future of the Rupee

India and International Monetary Management *by S K. Taneja; Sterling Publishers Pvt. Ltd. New Delhi*, 1976; *Pages*. *XIV*+490; *Rs*. 75

A PLETHORA of newspapers and economic journals notwithstanding, it may be stated that India's stake in the complex field of international monetary management has neither been clearly explained nor understood as to sensitize the public in adequate measure. Authoritative Government reports and scholarly studies very often err too much on the side of factual as well as theoretical presentations while those meant for popular consumption fudge the dough too much to lend any crispness to the final product The author has successfully steered clear through these extremes in this racily written book interspersed with cartoons reproduced from well known dailies and given the treatment an altogether novel form and content.

The focus on India's internal and external objectives in their larger international setting has been the main preoccupation of the author Hence, our position in the third world, aspects of international trade relations, foreign aid, debt, servicing problems and our foreign exchange situation take up the first six chapters. The more technical issues relating to the external value of the rupee link with sterling, problems of fixed vs flexible exchange rates, IMF quotas and SDRS are covered in the next five chapters These are followed by lucidly written pieces on the gold price debate, currency convertibility, international liquidity, issues of currency realignment, the second US dollar devaluation, floatation of the currencies and the stages of reforms in international monetary system. Four useful postscripts deal with the consequences of the oil crisis, a resume of the crisis (1951-1973), the work of the *Committee of Twenty* for monetary reform and the amended articles of the IMF released in April, 1976. The coverage of the book is, therefore, comprehensive

With the steady annual growth of our foreign trade at 10 per cent and the retention of the system of managed flexibility and exchange control, the author does not pitch his hopes beyond the reasonable limits of possibility, given our domestic capabilities to assess and adjust the relationship between the monetary system, trade and development. The book is well written, factually dependable and contains a wealth of material on all topical issues presented in nontechnical language. The book has also been well produced with a bibliography and index

—B. N. Nair

Economics at Undergraduate Level

Basic Economics *by I.C. Dhingra and V.K Garg; Price Rs* 12 50 *and MICRO ECONOMICS by K P M. Sundharam and E.N. Sundharam; Price Rs* 16 50, *both published by Sultan Chand & Sons, New Delhi.*

STUDENTS AT undergraduate level in Indian Universities as well as those who appear in various professional exams (where paper on Economics has been introduced) need simple approach to understand complex economic theory Most foreign books on the subject do not meet their requirement and as well, in some cases, are not quite suitable to students in this country The books under review are welcome as these try to teach the subject of Economics in simple and free from jargon language. With the help of simple examples and diagrams the students are gradually familiarised with the various aspects of economic theory.

The first book 'Basic Economics' is primarily intended for students appearing in the Economics paper of Chartered Accountants examinations It deals with theories of consumption, production and price determination, economic planning and development, and banking and foreign exchange. Naturally with so many fields being covered the treatment of each field could not be at comprehensive level and neither perhaps that was desirable because this is an introductory approach for students most of whom may have been reading the subject for the first time

The second book 'Micro Economics' provides a fairly detailed treatment of the subject and the authors have pain to spell out the various aspects of Micro Economics as comprehensively as possible The book is also within its course content of undergraduate level syllabi of Indian Universities The authors have also added appendices here and there which have enhanced the usefulness of the book The students would find this book of help in their studies

—V.S. Mahajan

Agricultural Credit

Rural Money Markets in India *by Subrata Ghatak; The Macmillan Co. India Ltd. Delhi; Pages* 230; *Price Rs* 58.

AGRICULTURE OCCUPIES a very important place in the economy of India providing about 50 per cent of its National Income. But unfortunately the Indian farmer in many parts of the country has not been provided with any facilities wether to irrigate his land or to finance the agricultural operations to market his produce. In respect of finance especially the position of the farmers is very much pitiable. The most dominating source of agricultural credit is money lender. Till 1951 money lenders were supplying, about 70 per cent of the total credit required by the agriculturists But, most of the money lenders take undue advantage of the ignorance of the farmers and exploit them to the maximum extent possible. On the basis of the All India Rural Credit Survey Committee report, the Government has taken some steps to increase the supply of finances by Institutional

agencies such as Co-operative Societies, Commercial banks etc. But still much is to be done to relieve the Indian farmer from the clutches of the money lenders. Recently, the Government has done something to reduce the burden of the farmers by imposing moratorium on rural debts and establishing rural banks.

So far no systematic study of the agricultural credit market in India has been undertaken except that some attention was paid to this in some official and semi official reports and Mr. Ghatak's work is the first attempt in this matter The book has been divided into 8 chapters. In the introductory chapter the author has presented a bird's eye view of his work. In the second chapter the nature and compositon of the dual rural money market has been described in detail. Supply aspect of rural credit is also discussed. Mr. Ghatak has also examined the various proposals for incorporating indigenous banks and suggested some methods for achieving this. In the next chapter attempts to promote linkages by a multiple credit agency approach have been made and the possibilities of a multiple credit approach were discussed and here the role of the Commercial Banks has been discussed in detail. In chapter 7 Mr. Ghatak made an attempt to analyse the role of agricultural credit in India's green revolution. The main observations and suggestions of the author were given in the last chapter.

Mr. Subrata Ghatak has thus made a scientific study of the problems of rural money markets in India. This book, though is an advanced level study will be of much use to students of agricultural Economics. Steps may also be taken on the lines suggested by Mr. Ghatak to provide easy and cheap credit to the farmers in order to enable them to carry on the agricultural operations without any difficulty and thus increase productivity and production in the agricultural sector

—A.T. Raju

Agrarian Reforms

Agricultural Development in China and India—A Comparative Study *by Kalyani Bandhopadhyaya, Wiley Eastern Limited New Delhi* 1976; *Pages* VI + 204

INDIA AND CHINA with similar agrarian structure, started their process of economic modernization simultaneously. Both countries have attempted to introduce sweeping institutional and techological changes in their agriculture Whereas China based her agrarian reforms on Marxist ideology, India followed a slow and tortuous way of development within the framework of a democratic political set up

In the course of six chapters, followed by a detailed index and bibliography, the author analyses the process of agrarian development of India and China during their post independence and post revolutionary periods Also the study compares their performance during the last 25 years in the context of the situation prevailing in the 1930 In comparing the changes in the agrarian set-up the author has not lost sight of relating them to agricultural production

The author contends that the main difference between the two countries in the field of institutional reorganization, is that while china succeeded in implementing whatever she intended to, in India most of the objectives failed to materialize This is because successful implementation of co-operative farming as attempted in India is contingent upon some degree of compulsion

On the other hand, the Chinese land reforms were based on force relationsip Regarding the agricultural input output of the two countries, the study concludes that the total foodgrains production of China during the 1950s and 1960s as in the 1930s remained much higher than that of India, but the rate of growth of foodgrains production in India during 1952-53 was slightly higher than in China

Much stress has been laid on chinese agrarian reforms mainly because, as the author admits, it is difficult to establish the afacts of Chinese agriculture. The study takes us through the different stages of Chinese reforms-From the Soviet model of development to collectivization leading ultimately to "Real Communism", The pros and cons of each stage has been discussed exhaustively Since the facts about Indian Agriculture are undisputed, its reforms are discussed lightly

To conclude, the book can be commended for its thoroughness and definitiveness and also for its clarity of ideas and expression

—R. Muralidhar

Family Planning

(*contd from Page* 29)

demands or creating new demands. This is basically due to the fact that the socio-economic systems in developing countries including India are not consistent with preferred behavioural patterns leading to low fertility We would be naive if we imagine that the reduction in the rate of population growth would itself raise the standard of living

The real obstacles in development are in the compound effect of such factors such as the inequality in agriculture, rigid social structure, imbalance in resources and allocations, and mal-distribution income Changes in fertility behaviour could only occur as an integral part of a general process of change. Unless Family Planning programme is linked and related to total Programme of development, including education of girls, status of women, marriage age, female emplcyment, social security at old age, etc, accompanied by wider distribution of the gains of development among the masses of population, the proposed decrease in the rate of fertility is not likely to be achieved. Obviously the need of the hour is not to go in for active campaign of Family Planning but to tackle the problem of social development along with the lines of economic growth. Unless the country achieves a breakthrough in overall socio-economic development, there is no hope of further reduction in the birth rate. The emphasis consequently should be on an integrated and package approach to economic progress and social transformation coupled with Family Planning Programme but not Family Planning Programme alone. The unified approach that is mentioned in the beginning is not only meant for developing new techniques of planning, but also for ushering in a successful evolution of the new course of development wherein political will for bringing about the required structural and institutional changes is of paramount importance.

Development Notes

Coal Output Up

Coal India Limited increased its production of raw coal in the outgoing year by 490,000 tonnes. The production in 1976-77 was 89.47 million tonnes as against 88.98 million tonnes in the previous year. Annual despatches in 1976-77 from the CIL mines were 83.77 million tonnes as against 81.72 million tonnes in 1975-76.

As a result of better productivity and better utilisation of plant and equipment, there has been a marked improvement in the CIL's performance and its subsidiaries during the year. There had been 10 to 15 per cent improvement in capacity utilisation of the various types of plant and machineries through better maintenance, spare provisioning and quicker repairs.

The indigenous content of mining equipment had been steadily improved by about 20 per cent and nearly 90 per cent of the equipment used by CIL was manufactured indigenously. For the first time Indian coal had entered countries like France and Belgium. Qualitywise Indian coal had been accepted by all the countries. Japan had evinced interest in Indian coal and had taken a trial cargo of 4,500 tonnes. Italy had entered into an agreement for purchase of 200,000 tonnes during 1977.

Schemes to Augment Milk and Poultry

The Union Government has sanctioned six centrally sponsored schemes costing Rs 210 lakhs to increase production of milk, meat and eggs in Andhra Pradesh. The schemes are in addition to the 13 sanctioned last year. A calf-rearing scheme would be taken up in Khammam district at a cost of Rs 60 lakhs which woud be shared between the Union and State governments in the ratio of 2:1. Under the scheme 5,000 small and marginal farmers, besides agricultural labour, would receive subsidy for rearing cross-bred calves.

Three projects for sheep-rearing would be taken up in Madak, Srikakulam and Nellore districts, involving an outlay of Rs 30 lakhs for each project. Two poultry development projects would be taken up in Karimnagar and East Godavari districts, each costing Rs 30 lakhs. The sheep-rearing and poultry development project would be fully sponsored by the Centre.

Electronic Estate For Women Entrepreneurs

An electronic feeder industrial cluster (WEFIC) for women entrepreneurs is being set up by the Tamil Nadu Government in its Dr Vikram Sarabhai Instronics Estate in Madras. 40 sheds are proposed to be set up under the scheme. Work on 10 sheds, at an estimated cost of Rs 7 lakhs has already started and the project was expected to be completed in about six months. The object of the scheme was to attract women entrepreneurs by providing them special infrastructural facilities to operate as a closely knot group. Sheds would be made available to women entrepreneurs at a concessional rate of ten paise per square foot per month at which sheds had been allotted to technocrats on the campus. Others on the campus paid twentyfive paise per square foot.

Land measuring 100 sq. acres had been acquired two kilometres from the campus at Adyar for expansion envisaged by the corporation. Under the project, developed plots in groups of quarter acre, half acre and three-fourth acre would be allotted to entrepreneurs. Besides, all necessary infrastructural facilities would be provided. The entrepreneurs would be required to put up their own sheds. At the Instronic Campus, which had an up-to-date test and development centre – a Rs 14.5 lakh building housing equipment worth about Rs 25 lakhs – wide range of items from TV components to sophisticated dolls of items were being produced.

Plan To Double Industrial Production in U. P.

The industrial production in UP will be of the order of Rs 3,000 crore by the end of the Fifth Plan. With the vast potential for sustaining rapid industrial growth rate in view, the State government has now set a target of doubling the industrial production to Rs. 6,000 crore by the end of the Sixth Plan. To achieve this target the State government envisage, an additional investment of Rs 1,500 crores both in private and public sector during the Sixth Plan. According to official estimate this additional investment will create fresh employment opportunities for about eight lakh persons.

The State government has proposed an outlay of Rs 350 crore for industry and mining in the Sixth Plan to keep the tempo of the industrial growth rate.

The outlay for industries in the Fourth Plan was only Rs 43 crore which was stepped up to Rs. 256 crore during the Fifth Plan.

Cashew Kernels Export

India earned foreign exchange worth Rs 99.70 crore through the export of cashew kernels and cashewnut shell liquid during the first ten months of the financial year 1976-77. Export of cashew kernels from April 1976 to January 1977 totalled 48,958 tonnes valued at Rs 98.85 crore against 47,717 tonnes valued at Rs 85.32 crore exported during the corresponding period in 1975-76. Compared to the previous year exports to the USSR, Japan, Canada, Australia, the Netherlands, West Germany, United Kingdon, German Democratic Republic and Kuwait were higher during the period but to the USA it was slightly less.

First Indigenous 4-Wheel Drive Tractor

The first indigenously produced four-wheel drive tractor has been introduced in the market. Designed and developed by Escorts Limited, the new 35 H.P. tractor is expected to save fuel, while raising usage levels.

It represents major breakthrough in Indian tractor technology, as in this country tractors are currently powered only in the rear two wheels.

Substantial economy in fuel consumption is likely to be effected through the usage of this tractor as slippage has been reduced from the normal 15 to only three per cent. Usage levels have also been increased owing to higher draw bar pull as a result of which it can pull three furrows instead of only two furrows like the two-wheel drive tractor.

Costing Rs 44,000 (ex-factory price) as against the two-wheel model which costs Rs 39,000 this tractor is likely to be best suited for paddy planting due to its low slippage factor. With an optimum usage level of 2,000 hours annually, the new tractor is capable of ploughing 150 acres and three crops a year. It is already in wide usage in several developed countries including France and Italy.

World Bank Aid For Fisheries

The World Bank and its affiliate, the International Development Association (IDA) have decided to provide $ 18 million for project designed to increase fisheries production in Gujarat. The IDA will extend $ 4 million and the World Bank $ 14 million on "Third Window" terms. Apart from supplementing local diets which are deficient in proteins, fishery development is also important for exports. India is presently the world's largest exporter of shrimps, which in 1974 earned $ 140 million worth of foreign exchange.

The $ 38 million Gujarat project comprises harbour improvement works and shore facilities serving the ports of Mangrol and Veraval; the development of infrastructure for eight fishing villages situated between Mangrol and Veraval and credit for investment in motorised fishing vessels and canoes.

At full development, the Gujarat project is expected to help increase fisheries production by about 44,600 tonnes a year (including 3,700 tonnes of shrimps) valued at $ 8.1 million.

Consumer Industries in Private Sector

All major industries, falling in the heavy industrial sector, from now onwards will generally be in the public sector. The consumer industries, however, will normally be in the indigenous private sector and will be further dispersed in the small-scale sector. The private sector too will get assistance for further industrialisation and import substitution. Enunciating the new government's industrial policy, the Union Minister for Industry said that the basis of industrial development would be decentralisation, use of indigenous raw materials and extensive utilisation of the available labour potential. This would eliminate unemployment.

The government would be discreet in nationalising industries, would oppose individualised and bureaucratic monopolies, and would make the public sector fully accountable to the people. The new government fully endorsed the policy of rapid industrialisation to make the country self-sufficient.

However, it favoured technology as well as a pattern of industrialisation based on efficient and full exploitation of raw materials, manpower and indigenous knowhow. The new government believes in the mass production of commodities and materials by the masses themselves.

Minerals Spin more Money

The total sale value of minerals in Rajasthan rose by 19.48 per cent in 1976-77 as compared to 1975-76. According to economic review for the state for 1976-77 the minerals production was on the whole more in 1976 compared to the preceding year. Among the metallic minerals the production of copper ore, iron ore, run of mine ore, lead concentrate and zinc concentrate increased. Only silver declined by 1.57 per cent during 1976. The review says that among the non-metallic minerals the production of calcite, china clay, dolomite, felspar, flourite, limestone, quartz, rock phosphate, silica sand, ermiculite, graphite and soap stone was more during 1976 compared to the preceding year.

During 1976-77 the total sale value was reported to be Rs. 4251.11 lakhs against Rs. 3556.99 lakhs in the previous year. Employment was provided on an average to 25,806 persons during the year under review as compared to 24,970 persons per day.

Improved Kerosene Stove

A revolutionary new kerosene stove has been put on the market recently which would save the nation 3,00,000 kilolitres of kerosene a year worth Rs. 30 crores.

The stove, marketed under the brand name "Nutan" has a thermal efficiency of more than 60 per cent making it much more efficient than even cooking gas stove.

Industrial Development Campaign in U.P.

An industrial development campaign has been launched in UP from April 18 by the State Bank of India in collaboration with the Directorate of Industries and Small Industries Service Institute, Government of India. During the campaign entrepreneurs will be encouraged to set up small industries. The State Bank will provide financial assistance on liberalized terms. sanction loans on the spot to viable projects identified by the entrepreneurs. The dentification and location of suitable enterprises will be done by the bank with the assistance of industries officers. The banks' techical cell will provide consultancy and technical services.

In the first phase the campaign has been launched in the potential growth areas of Sitapur, Shahjahanpur, Jhansi, Almora, Naini Tal, Etawah and Bara Banki where preliminary ground work of identification of entrepreneurs has already been completed. It is envisaged that apart from looking into the financial problems of existing units about 1,000 new units will be promoted in the backward areas.

Danish Loan For Fishery Development

An agreement for a new Danish loan of Rs 12.5 crores to India has been signed between the two countries in New Delhi. The new loan will be utilised for import of a large range of equipment and capital goods such as boats and other equipment for developing fisheries and fishery industry, machinery for fertilisers, petrochemicals, cement and rubber industries, machinery for food processing, drying, storage and machine tools for small-scale medium and large scale industries.

The loan is repayable in 35 years, inclusive of a grace period of 10 years, and is interest free. Denmark has been extending assistance to India since 1963. The total Danish financial assistance to India has so far been Rs 30.3 crores. With the present loan, the total financial assistance would amount to Rs. 42.7 crores.

Modern Bullock Cart

The Maharashtra cooperative engineering society at Kolhapur has produced a prototype of a three-tonne bullock cart designed to replace the traditional one-and-a-half-tonne vehicle.

The prototype is fitted with rubber tyres, ball bearing axle and a drum-type brake system entailing a reduction of 50 per cent, in the burden borne by the bullocks.

Its speed is about 25 per cent higher than that of the traditional cart. The steel body is fitted with an angle system and the galvanised hallow pipes prevent corrosion. It is priced at Rs. 3,000 and will be ideal for use in the rural areas.

Scheme to Raise Coconut Yield

A scheme to boost the yield of coconut palms in Lakshadweep islands is under way. The scheme has been jointly undertaken by the Agricultural Finance Corporation, Bombay, Syndicate Bank, Kavarath rath and the staff of the Union Territory of Laskhadweep.

The bank, after due recommendation from the AFC, will undertake for finance the small and marginal farmers of the ten islands of the territory. The scheme contemplates encouragement for inter-cultivation with crops which are directly or indirectly, beneficial from the point of view of increased productivity from individual holdings.

New Tomato Variety Evolved

The Gwalior Campus of Jabalpur Agriculture University has evolved a new luscious variety of tomato (Sugar percentage 1.62) named JTG 1. Among all the available varieties it has the highest Vitamin-C content. The plants of JTG 1 are semi-erect with an average height of 6.7 cm. The fruit is egg shaped and somewhat flattened. The crop duration is 100 to 175 days. JTG 1 accords the maximum marketable fruit, in view of its fleshy tendency and its firmness. No fruit cracking has been noticed in this variety. The whole of Madhya Pradesh has been considered for its cultivation.

Disease-Free Potato Seeds

The Regional Potato Research Station, Jullundur, has developed a disease-free potato variety. Seeds of the disease-free variety were successfully evolved in Research Stations in hill areas of over 2500 metres altitude. The system of potato cultivation can be now changed with enough disease-free seed being available.

A training programme is in force to educate farmers on the multiplication of disease-free varieties, which has helped to double per hectare yield.

80 PAISE

YOJANA

Volume XXI Number 8
New Delhi
1 June 1977
11 Jyaistha, 189[illegible]

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan, but is not restricted to expressing the official point of view

Chief Editor
OMCHERY N.N. PILLAI

IN THIS ISSUE

Cover Photo · **P. K. Kapoor**
Design · **Jiwan Adalja**

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Subscription ; Annual—Rs. 18, Two years—Rs. 30, Three years—Rs. 42, Foreign Subscriptions : One year—£2.70 or $6.50. Two Years—£4.50 or $9.00. Three Years—£6.30 or $12.50 Single copy—eight pennies or $0.25.

Family Welfare Through Persuasion

Words acquire meaning through their usage. Innocen words turn "sinners" sometimes. Like propaganda, freezin; etc Professor Galbraith once ramarked that it was th irritating word "freeze" rather than the programme of "wag freeze" itself which provoked popular hostility against tha timely measure the British Government took in the midsixties The latest to join the rank of sinners is the term family planning thanks to the dis-reputable way the programme was promote in recent months. The re christeni of the programme as Famil welfare has, besides conveying the comprehensive nature of th programme as an overall plan of human development, help to overcome a serious semantic disadvantage in communication

The new dimensions and the positive thrust of th programme call for added efforts to persuade people to accep the small family norm, the pre-requisite of total welfare, as way of life. The prime Minister and the Union Health an Family Welfare Minister have repeatedly declared that th Government would go ahead with population control mos vigorously and promote all methods of birth control, of course without any element of compulsion and coercion. The polic Statement on Family welfare programme reiterates that th Government would spare no efforts to motivate the people t accept birth control voluntarily in their own interests and i the interests of their children as well as in the larger interests c the nation.

To motivate the people means to convince them that th suggested course of action is the best method to serve their ow interests In developing countries like ours, where the barrier of illiteracy, tradition, social norms and economic backwardnes etc are still formidable, the problem is to make laige sections of the population aware of their own interests. Thei vision of the quality of life is largely conditioned by thei environments- economic, social, political, religious and cultura Any motivational effort should take into consideration th various socio-economic differences in the environments c different sections of the people so that they are enabled t appreciate the advantages of a smaller family from a keene understanding of their own interests Similarly, any motivatic nal programme should be based on a clear understanding of th social, cultural, physiological, and psychological factors whic affect the use of contraceptives.

There have been hundreds of studies in our country o fertility, KAP, contraceptive use, population control organisatio and administration, education, and communication etc whic have collected enormous data on all aspects of the behaviour pattern of the people with regard to birth control. Little c these findings seem to have gone into the designing of motiva tional strategies in the past. This explains to some extent th wide gap between the awareness and practice of birth contr in both rural and urban areas

Now as the success of the programme depends entirely o democratic persuasion, it is time to give a more scientific loo to the problem of motivation and persuasion. The countr will touch the alarming one billion mark by the turn of th century if the trend is not checked. The Government aims a bringing down the birth rate to 30 and 25 per thousand by th end of the Fifth and Sixth Plans. This is possible only throug an all-out effort of the public machinery and the total an willing participation of the people We should see that we d not fall short of targets any longer. We should not forget that o earlier occasions population growth had belied the expe estimates. During 1951-61, the growth was as high as 20.5 pe cent as against the Planning Commission's estimate of 12.5 pe cent. The population had crossed even in 1971 the projectio for 1981 by about 20 million. All these point to the need fo relentless and more realistic efforts. □

A New Approach to

FAMILY WELFARE PROGRAMME

RAJ NARAIN

Minister of Health and Family Welfare

THE PRESIDENT in his address to Parliament on March 28, 1977, stated that "Family planning will be pursued vigorously as a wholly voluntary programme and as an integral part of a comprehensive policy covering education, health, maternity and child care, family welfare, women's rights and nutrition" The Prime Minister has on a number of occasions underlined the vital importance of family planning as a means to individual and national development and well-being This Government is totally committed to the Family Welfare Programme and will spare no efforts to motivate the people to accept it voluntarily in their own interest and in the interest of their children as well as in the larger interest of the nation.

Family planning has, however, to be lifted from its old and narrow concept and given its proper place in the overall philosophy of welfare It must embrace all aspects of family welfare, particularly those which are designed to protect and promote the health of mothers and children It must become a part of the total concept of positive health At the same time, it must find meaningful integration with other welfare programmes, viz, nutrition, food, clothing, shelter, availability of safe drinking water, education, employment and women's welfare It will be our endeavour to bring about this integration in a greater degree We expect the States to do the same.

The change in the name of the programme from family planning to family welfare is a reflection of the Government's anxiety to promote, through it, the total welfare of the family and the community. It is our intention to take the programme forward in the real sense as an investment in man. We wish to make it abundantly clear that in this task there is no room for compulsion, coercion or pressures of any sort. Compulsion in the area of family welfare must be ruled out for all times to come Our approach is educational and wholly voluntary There will, however, be no slackening of our efforts in this direction

The Government attaches the highest importance to the dignity of the citizens and to his right to determine the size of his family. We have no doubt that by and large the people of India are conscious of the importance of responsible parenthood, given the necessary information and adequate services, they will accept the small family norm We will promote all methods with equal emphasis and it will be left to every family to decide what method of contraception it will like to adopt Employees of the Union Government, State Governments, autonomous bodies, local bodies, etc, will be expected to set an example and to adopt the small family norm

We are totally against any legislation for compulsory sterilisation either at the Central level or by the States Sterilisation, both male and female, is a terminal method and suitable for those couples who have reached the optimum family size. Services for sterilisation will be offered free of cost to those who voluntarily wish to adopt this method. Similarly other services under the programme will be available to the people free of charge. The acceptance of sterilisation and IUD involves to and fro travel to a clinic, a brief stay in the hospital, resulting in possible loss of wages which the majority of our people cannot easily afford In view of this, it has been decided to retain the provision for monetary compensation. Any medical complication resulting from a sterilisation operation will be attended to free of cost; and if in an unfortunate case recanalisation becomes necessary, this facility will also be offered to the individual concerned under the best possible professional care without any charge.

Nearly 80 per cent of our population lives in villages Medical services are not able to reach them in an effective way. An integrated rural health scheme is on the anvil and will be implemented shortly It is of the utmost importance that adequate ante-natal and post-natal care is made available to pregnant mothers. To this end a comprehensive scheme of training of indigenous midwives (dais) will be implemented Under it maternity services will be made available to all mothers who may need them The programme of immunising children against common diseases such as Whooping cough, Diphtheria and Tetanus will be expanded further. We expect that the State Governments will give necessary co-operation and assistance in this direction

The direct correlation between illiteracy and fertility and between infant/mother mortality and the age at marriage is well established by demographic studies While on the one hand the Government will pursue its policy of according high priority to the improvement of women's educational level, both through formal and non-formal channels, it will also bring legislation for rising the minimum age of marriage for girls to 18 and for boys to 21.

Family planning and population control is a subject in the Concurrent List, yet the implementation of the family welfare programme is very much the responsibility of State Governments. Assistance for the implementation of the programme is provided by the Central Government to the States on cent-per-cent basis. In order to ensure a purposeful implementation of the family welfare programme, the principle of linking a percentage of Central assistance to the State plans with their performance in family welfare programme will be continued.

Population education has so far not received the attention it deserves.

The NCERT have developed some models for the introduction of population education in the school education system. These models have already been adopted by the Central Schools Organisation. We would urge that the departments of education in the States should adopt these models, or their modified versions, in the syllabus in the schools Forty two per cent of our population is below the age of 15 years It is this population which will soon be entering in the area of matrimony. We must take steps without any further delay to see that the youth receive population education as part of their normal courses of study.

The population of India has been increasing at the rate of about one million every month. It has increased by nearly 270 million since 1947 and is today estimated to be 615 million. If the present rate of growth continues, we will be touching the one-billion mark by the end of the century. This rate has to be arrested. The birth rate targets of 30 and 25 per thousand by the end of the Fifth and Sixth Plans respectively can be achieved only with the total and willing participation of the community in the family welfare programme For this purpose it is important that all media of publicity, including motivation through the extension approach, should be utilised fully by the Central and the State Governments We would very much expect that just as at the Centre we have involved all media units of the Ministry of Information & Broadcasting in the motivational campaigns, in the States also the State Departments of Public Relations and other departments having their own publicity set-ups would be totally associated with the motivational effort.

It is of equal importance that trade unions, chambers of commerce, cooperative societies, organisations of women, federations of teachers, village panchayats and all other institutions which can influence public opinion should be associated intimately with educational campaigns. The village panchayats can play a significant role in this task. Their potential as change-agents needs to receive greater recognition and attention.

No programme will succeed unless voluntary organisations particularly youth and women's organisations participate in its implementation fully and extensively. So far this participation has been very limited The Government wishes to invite the suggestions of voluntary organisations and such public bodies as are engaged in the general task of Family Welfare for evolving suitable patterns of cooperation and assistance Full rebate will be allowed in the income tax assessment for amounts given as donations for Family Welfare purposes to Government, local bodies, or any registered voluntary organisation approved for this purpose by the Union Ministery of Health.

While the existing methods of contraception will continue to be available to the people, it is important that the search for newer methods should be intenisfied The Government will give special attention to the necessary research inputs in the field of reproductive biology and contraception.

The programme and the approach for implementation of the Family Welfare Programme as outlined in the above paragraphs will succeed only if there is willing cooperation from all in full measure. The Family Welfare Programme embraces all the principal areas of human welfare. It will be wrong to leave it only to the Ministry of Health and Family Welfare in the Centre and their counterparts in the States It is essential that all Ministries and Departments of the Government of India as well as of the States give due importance to this programme and work for its furtherance The performance of Family Welfare in the States will be intensively and carefully monitored and the Union Cabinet will review the situation in depth at least once a year. Suitable machinery for ensuring coordination with other connected programmes of welfare may be set up in the States also. □

SUCCESS STORIES

THE FIFTH ASSAM N.C.C. Battalion, with Heaquarters at Tezpur recently completed its Silver Jubilee Celebration. Ten thousand people witnessed the ceremony. Apart from the military feats, unarmed combat etc displayed by the Cadets—both boys and girls was the story of social service rendered by the Cadets

In ten days' time the cadets constructed a 250' x 60' x 10' fishery tank. One hundred Cadets worked daily for 4 hours to transform a mosquito breeding ditch to a fishery tank. Besides improving environmental hygiene and creating a source of fresh protein, this has succeeded in creating a deep impression on the public aobut the constructive urges of the youth.

The Cadets of the Battalion also donated blood They have drawn up a long list of willing Cadets for blood donation and have requested the medical authorities both civil and military to come to them when in need

The Cadets during Annual Camp also provided voluntary labour to complete a school house at Bindukuri

—**S.C. Gangopadhyay**
FPO, Tezpur

LES ATELIERS AU FILS D'INDIA" is an institution employing destitute women engaged in the manufacture of wall linings and curtains solely for purposes of export. In order to inculcate the habit of saving among the working women, the State Bank of India's Pondicherry branch has opened Savings Bank Accounts numbering about 300 in the names of the working women

Every week a sum of Rs. 2/- to Rs. 5/- is collected from each worker and remitted by the institution to the Bank. Thus the poor and the destitute women who hitherto had no easy method of saving have been brought in to the Banking fold. These women have so far been able to save Rs 32,000/-

—**S. Subramaniam**
FPO, Pondicherry

SHRI SAMUDRAM, an agriculturist, was convicted and sentenced to life imprisonment on a charge of murder of his wife. He has been repenting all along for the grave mistake committed in a fit of temper

Shri Samudram was sentenced to life imprisonment on the 27th January 1976 Impressed by his good behaviour, the authorities have allowed remission of sentence and released him from jail recently He is 43

When he came out from prison he was penniless and was not able to get any financial support from villagers Thanjavur Branch of the State Bank of India came to his rescue and provided him financial help to start a small shop

—**R. Ramanikanthan**
FPO, Thanjavur

The Problem of Rising Prices in India

V. J. AREKAR

IN ANY DEVELOPING economy price control has to be an integrated policy of general economic development and a country which fails to pay adequate attention to this aspect is boundto suffer from the evils of rising price levels. This is true in the case of our country. Ever rising price-level upsets development programmes of the country. That's why we had to recast our five year plans, from time to time taking into account the then price-levels in the economy. In modern economy, all the sectors are inter-dependent; if somewhere something goes wrong it creates adverse effect on the entire economy. It will disrupt the rational allocation of scarce resources to the different sectors. Budgets of these sectors will stand completely upset. Inflation will be generated in the economy. Once it is set in motion, it will take its full course delivering all its evil effects It is too late then to control. It is like the vicious circle without any break through. Rise in prices leads to rise in cost of production and rise in cost of production leads to rise in price levels. If this happens, the authorities feel frustrated and then they say that rising price level is an essential feature of any developing country.

True. But the rate at which it rises is a matter of concern, and certainly not the rate at which it is galloping in India. In this context I wish to quote Mr Ford, American Ex-President. When he assumed his office, the general price level in America was rising at the rate of a little over three per cent per annum So Mr. Ford in his presidential speech made a reference to it and said, "our number one enemy is rising prices (inflation), we must fight it out first". But in our country when the price level has been rising at the rate of 25 to 28 per cent per annum, little has been done to arrest the upward trend

Price-level concerns all, more so the fixed income groups They are hard hit by rising price level The rupee which they earn with hard labour deteriorates in value, fetching less and less each day They look towards their government helplessly to do something to control the price level or else to increase their dearness allowance and in pursuance of this resort to morchas, gheraos, strikes, go-slow tactics and violence which proves very costly to the country Millions and millions of manhours are lost bringing down total productivity of the country which in turn further accentuates the price-front i e actually adds fuel to the rising price level through shortages of essential goods and services

To achieve industrial peace and step up productivity the general price-level must be kept stable over a considerable period so that working class should not be given a chance to agitate and resort to violence Nevertheless the legitimate demands should be met. Public sector can take the lead and the private sector can follow its big brother Industrialists and Trade Unions should sort out problems amicably This will help improve supply position of goods and services To bring down price level, more attention should be paid to supply side rather than the demand side Gallopping price level is the root cause of all economic maladies in underdeveloped and developing countries Our planning body has to pay adequate attention to this basic problem

Price-level During Five Year Plans

During the First Five Year Plan the general price level did not rise; actually it came down a little due to the favourable weather conditions (good monsoon years) during 1951–55 Production of foodgrains exceeded the target by eleven million tonnes

In fact price level in India started rising during the Second Five Year Plan (1956–60) During this period agriculture suffered a set-back due to three successive bad monsoon years. This led to increase in general price level including prices of industrial raw materials which inflated the cost of production The Index showed that price level was increasing at the rate of 6 to 7 per cent per annum; and this trend of rising prices has not subsided anywhere at any time. The government has been trying its best to arrest the ever rising price level but to no avail. The main reason has been that the government efforts have not been well knit, and in harmony with the economic policy. Therefore, pricing policy must form an integral feature of general economic policy of the country.

While setting up various targets for different sectors of the economy, care must be taken to estimate the real requirements of the country. Alongside stress on financial planning, physical planning should also be taken into consideration. During the first three plans our planners assumed that Indian population would increase by just 1 25 per cent per annum But it rose by more than 2 per cent per annum resulting in shortages in the economy Based on this calculations our demands outstripped the supply causing price spiral.

Our heavy investment in public sector is one of the major causes of rising price level If one takes a close look at the working and functioning of the public sector, one would feel that it should not have been established at all. Excepting a few, almost all the public enterprises are incurring losses year after year They invite general public (tax payers) to make up their losses. In this context I wish to quote our Prime Minister Shri Morarji Desai. He said, "It is unfair to expect the people of India to continue to subsidise losses of most of these projects year after year or ask them to pay prices higher than the landed cost of similar products if they had been allowed to be imported The time has now come when we should take a close and critical look at the performance of the various enterprises and see that their management leads to the fulfilment of the expectations of the people".

The Prime Minister's statement throws a glaring light on the performance of the public sector. What is worse is that these enterprises are not working to full capacity It was assumed that there would be 90 per cent capacity utilisation in these enterprises during the Fifth Five Year Plan. With 10 per cent capacity still remaining unutilised for which investment is already made, the money supply or purchasing power without equal amount of goods and services flowing from this sector, would mean deliberate boosting of demand without corresponding supply. •

Prof. Arekar belongs to Chetna College, Bandra.

The industrial policy of the government is also responsible to a certain extent for price-hike. Undue delays, in sanctioning licenses, etc are some of the factors which prevented our government from following a rational industrial policy. Even wrong strategy and patterns were followed. Small scale and cottage industries were not given sufficient attention. Foreign collaborations were allowed in nonessential and consumers' goods industries Certain industries were set up only to augment the country's economic development, for instance expansion of nylon industry, superfine cloth, T.V. and luxury articles and cosmetic. Investment in these industries created effective demand but the consumers' goods industries did not cope with this demand and hence 'rise in price-level What the government should have done is that instead of encouraging production of non-essential goods, it should have expanded consumers' goods industries which could help stabilise price level

Curb on Non-essential Consumption

Restriction on non-essential or excess consumption is another method of controlling the price-level It is more effective than any other monetary discipline But unfortunately this suggestion which came from the noted economist Prof B.R Shenoy during the second five year Plan was turned down by the then Government He had estimated that by imposing this restriction the government could have saved Rs 5000 million which could then have been utilised for financing more urgent projects, but this suggestion too was not accepted, and excess spending took the price-level up So even today, restriction on excess consumption is as much a need of the hour as it was during the earlier plans. For this, voluntary savings should be encouraged The government should provide attractive alternatives to the people to invest their money.

Excess money supply in Indian economy is yet another ground through which angle rise in prices can be viewed We have executed four five year plans and three annual plans calling for huge investments. The government was required to resort to create money for financing the various projects when it ran short of real resources, Rs. 4200, Rs. 11000, Rs 15000 and Rs. 20500 millions were created duringthe first, second, third and fourth plans respectively. This deficit financing went into the hands of general public in the form of wages, rent, interest and profits causing demand for consumer goods. Thus a situation arose in which lot of money chasing few goods and services came into being Prices started shooting up Deficit financing needs to be curbed drastically, if the price-level is to be cushioned. The compulsory Deposit Scheme, Dividend Restriction Ordinance, Credit Squeeze Policy of the R B I. and the like were resorted to curb the money supply Along with this, our planners should also pay adequate attention to the uncertainties which are the part and parcel of Indian economy Still 50–70 per cent of Indian agriculture depends on monsoons. Setbacks in agricultural production due to erratic monsoons means shortages of foodgrains and industrial raw materials which will inflate the cost of production, thus causing the prices to go up So, we must make sufficient provisions for the uncertainties

A corollary to this is of taking over trade in foodgrains A country which is wedded to socialism cannot afford to keep this trade in the private hands This is a must to wipe out completely black-marketing, hoarding, speculating the adulteration in -foodgrains. It will serve two main purposes. First of all it will protect cultivators' interest and secondly price-level will be kept undercontrol. To support taking over of foodgrain trade, the nationalisation of foreign trade must be undertaken with careful thinking China has proved successful in wiping out deficit in her balance of trade in just a year or two after nationalisation Why not India ?

Last but not the least is limiting the size of family. We must limit our families to curb excess demand in the market Taking into account the present state of resources, India seems to be overpopulated If the same rate of growth in Indian population is allowed to be continued she would soon reach the stage of population explosion For this, people must be properly educated on this delicate issue They must be made aware of this evil so that they willingly accept it as a part of their way of life

In the interest of the country and the people at large internal price-level must be stabilised Economic growth should be achieved through price-stability. It will help invite investments and boost up exports □

The cause and control of obesity are not fully understood. Yet, medical science provides a few answers to the problem. It can be said with certainty that obesity is mostly linked with overeating and less work. So eating optimum rather than excess not only saves food, and in turn money, but saves it for the hungry. Experience shows that obesity is more common among rich people; so much so that some people even think being overweight is a symptom of well-being and prosperity.

Obesity— A Status Symbol

ZAKA IMAM

OUR BODY is a machine that performs various activities to keep alive To perform all those activities energy is needed and the body gets it from the food we eat. The total energy requirement of an individual depends upon age, sex and vocation; and special conditions such as in pregnant women and nursing mothers The energy value of a food is measured in terms of calories—more the body's energy requirement, the more the calories required But if the number of calories provided by food is greater than the number spent in performing daily activities, the surplus energy is stored into the body as fat.

The amount of this extra fat determines whether a person is obese or not. For convenience body weight could be classified into the following types; normal, ideal or desirable. Normal weight is something clinically, absolutely right—no worry. But ideal or desirable weight is the limit after which a certain percentage of additional weight could make an individual obese. The ideal weight, however, depends upon one's frame size—small, medium and large—and naturally his weight varies from person to person, their age and sex. Moreover, there are tables for relating ideal weight to height and frame size, but there is no general agreement among clinicians on this subject Likewise, the question of allowable percentage of excess weight above the ideal weight—for classifying an individual as obese—is also a difficult one But, as defined by a group of nutritionists, an obese individual is one that puts on a weight 10 per cent above the ideal weight for its frame size Some people refer to this condition, however, as overweight and reserve the term obese for those clinical conditions where weight approaches 20–30 per cent above the ideal. There are other means too to determine obesity, for example by measuring skin fold thickness over scapula (shoulder blade) in man and at mid triceps in women. While the concern for some one to know whether he or she is overweight or obese is obvious, it is for the clinician to decide.

Obesity may arise in different ways in different individuals, and the origin is not completely understood, yet. A glance at the various causes would be interesting Though whatever be the etiology or cause of obesity, it represents an imbalance in the whole body energy balance, and its immediate cause is always over-eating There are two things, haredity and environment. And both of them play their part in the development of obesity. A familial tendency for obesity is well documented. The two extremists opinions are: one, the cause of obesity is always over-eating and under-exercising (a curable state); two, it is an inherited disorder due to defects in the biochemical machinery—a state where much cannot be done to prevent the obesity. Researchers have, however, found no correlation between the weight of the parents and their adopted children though their eating habits are similar. Con-

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versely, the parents weight correlates well with their own children. So eating habits are not the sole cause.

Could there be defects in the body machinery? However, in man, the genetic factors may be manifested through their varied ability to trap body energy—some people being genetically effective to trap body's surplus energy into fat, others being ineffective The varied fat depositing tendency gives rise to two classes of people, easy gainers and hard gainers. The easy gainers are those people whose body is in the biological sense an efficient converter of food into energy, which is stored as fat. Hard gainers do not necessarily eat less than easy gainers, however. But being efficient converters, the easy gainers do however eat more than what their bodies can cope with and thus the surplus energy is stored as extra fat.

There are four possible ways to explain wide differences between individual tendencies of people to fatness. First, individuals vary in their energy requirements; second, the differences in their ability to synthesize and dispose of fats; third, their differences in capacity to store fat; fourth, individual variations in appetite. Metabolically, there are many differences between lean and fat individuals. But it is known that in general these differences are secondary—that is, they occur because of obesity.

To know differences in fat storage among people, it is important to know about special kind of cells, fat cells, which store nearly all our body fat and swell up like balloons The total fat accumulating capacity of an individual depends upon the number of body fat cells and the maximum size that each can attain. Experiments on rats have shown that overfeeding at an early critical period of development leads to an increased number of fat cells which is permanent This favours the idea that people with large number of fat cells are those who have been obese since childhood. And children who have been inflicted with obesity since childhood are therefore hard to be treated.

Scientists working at the Unilever Research Laboratory, Bedford, U.K. have advanced two alternative hypotheses to explain the link between obesity in early age and the intractability of obesity in later life. First, a large fat cell number (whether determined genetically or induced by overfeeding) stimulates appetite via some factors such as hormones. Second, eating patterns established in early life result in increased appetite throughout the life; the early overfeeding though might result in an increase in fat cell number, this increased cell number is not the cause of the continued overconsumption.

Harmful Effects

Some people like being obese, but to be true it is not an advantage but only a disadvantage. For example, obese diabetics are at high risk in comparison to lean diabetics; any surgery is more hazardous to them; childbirth for obese women is less likely to run smoothly and risk of heart diseases and high blood pressure is greater for an obese person Obese persons have a high fat content in their blood which accounts for most of the risks associated with obesity. A reduction in weight is known to improve the general health and life expectancy.

Treatment

As the origins of obesity are complicated and little understood, so its treatment is a problem. There are ways and means of reducing weight and checking obesity but the problem remains there—that is, the tendency for weight to return to its original set point. The way to reduce weight could however be a cut down in the food intake. Mixed low caloric diets are the advisable diet composition[s] [for] this purpose. Sticking to such [a diet] could slowly lead to stored [fat] utilisation and thus weight [loss]. Some authorities suggest high [pro]tein and low carbohydrate and [fat] content in the diet of those [who] desire to reduce. However, the [role] of high protein diet in weight re[duc]tion is not well established [It] has been found that low carbo[hyd]rate content in the diet is no[t as] much important as low fat con[tent]. There is in fact nothing as slimm[ing] food, because nearly all food i[tems] are otherwise fattening if consu[med] in sufficient quantities. To suc[ceed] in slimming, therefore, calls fo[r] regulation in every meal, every [item] in the meal and its daily follow[-up]. That is to say, slimmers need t[o be] weaned into a more sensible pa[ttern] of eating which they can mai[ntain] life long A golden rule ma[y be] to reduce 1 kg of body fat in a w[eek], an amount which has an en[ergy] equal to 7,700 calories and en[ough] to meet energy requirement of [an] average Indian for three [days]. Hence, to reduce one kilogramm[e of] fat means consuming 1000 cal[ories] less per day. In general, to co[ntrol] obesity calls for low fat diet [and] taking calories according to [the] body's needs. This not only s[aves] money, but food for the poor [and] hungry.

A planned weight reduction p[rog]ramme should however be un[der]taken under the supervision [of a] physician.

Power Generation - Some Facts

1. **The installed generating capacity has increased from 10 million kW in 1965-66 to more than 23 million kW at the end of January '77, showing an increase of 130 per cent.**

2. **The power generation in the country reached the record level of 7,824 million units a month in January, 1977, compared to an average of 2,750 million units per month during 1965-66, showing an increase of about 180 per cent.**

3. **Fifth Five Year Plan outlay for the power sector is Rs. 7,294 crores which exceeds the total investment of Rs. 6,6[...] crores made in the first fo[ur] Five Year Plans.**

4. **Till the end of 1976 over 1.[...] lakh villages had been electrifi[ed] and 29.31 lakh pumpsets en[er]gised.**

5. **During April-December 19[...] over 10,700 more villages h[ave] been electrified and about 1.[...] lakh pumpsets energised.**

6. **Since 1970 Rural Electrifi[ca]tion Corporation has sanction[ed] loan of over Rs. 638 crores [for] 1,511 Rural Electrification Pr[o]jects in the country.**

Integrated Rural Development

Yojana is happy to present the second instalment of reader's reaction to Dr V.K. R.V. Rao's thesis on the concept of Integrated Approach to Rural Development as contained in his Sixteenth Convocation Address to the Indian Agricultural Research Institute. Excerpts from this address were published in Yojana dated 15 February 1977 with an invitation to the readers to offer their considered comments on Dr. Rao's suggestions.

Yojana thanks all its readers for the overwhelming response. This forum is closed with this instalment.

Viability Notes on Restructuring Villages

K. K. SINHA

A DEVELOPMENT SCHEME oriented to the needs of the rural areas is being talked about more seriously in recent years[1]. This is necessary to defuse the impact of planning and technology over the vast expanse of rural India Any such plan has to rest on proper sizing of the villages as they are the generating and receiving centres of plan activities, and must have a viable size of their own The 1971 census revealed that 55 per cent of the villages in India had a population of less than 500, i e 100 families, and half of this was less than 40 families No development programme can operate in such small area units, and forces of change can be mobilised only by integrating the villages into bigger units[2]

The issue is not limited to finding the minimum operational size of the villages, but also requires grouping them in a hierarchy of different sizes according to inter-area linkages or flows generating in the rural economy We may discuss here different models of village scatter which are expected to satisfy the norms of viability in a developing rural setup

Dr Rao finds on the experiences of Kerala (where 87 percent of village people reside in villages with a population of over 5000) that a population of 5000 would be an ideal size for a viable village unit[3] But as this might not be practicable for other states, he puts down the limit to 2000 or 1000. He aims at finding an operational minimum but the problem of structuring of villages does not stop here It is equally important to determine the sizes of next higher ranks of villages and their interrelations on a wider area map. This may be termed as the optimal hierarchy of the rural scatter. Further, though the smallest size of the heirarchy is highly suggestive of the main problems in re-structuring of villages, it does not explain why a choice of 1000 or 2000 be accepted for a minimum operational limit This requires some elaborations

We put here a more comprehensive area model implicit in Balwantrai Mehta scheme of democratic decentralisation Starting from the block level as the optimum size of rural administration, the scheme prescribes a size of about 80,000 spread over an area of 150 sq miles within which the panchayat units would form a circle of 4000 population This panchayat size conforms to Dr Rao's choice of an operational minimum, and can be obtained through a union of villages under one panchayat Thus, panchayats become the basic units of the block level hierarchy of villages.

In Bihar the administration found that a Halka of 8–9 thousand population size (with two panchayats as its constituents) would work as an optimal revenue unit under a revenue Karmachari The choice for the panchayat size is made on the coverage capacity of the Gram Sevak who is expected to work as an extension agent for an area of 7–8 kms, while two such units could be combined for the Karmachari. Thus the Halka here is supposed to make a financial optimum size for tax administration

The one merit of the scheme laid down by the Mehta Committee is that it brings distance factor in deciding the optimum operational size of villages Further, it conceives the problem in increasing hierarchy of administration But this approach does not take note of other linkages in the rural area Moreover, it does not decide the minimum size of the village unit itself which would form the panchayat.

A panchayat may mean a combination of 7–8 villages of the size of 500 population each but this size would not respond to the needs of development. Let us suppose that the minimum size of a village should not be less than 1500 population This is a viamedia for the figures suggested by Dr. V K R V Rao This can be justified on the ground that this is the minimum size for village self-sufficiency, i e this would allow a minimum of marketing to the local population with the resources available in the given area limits. Thus this size can be said to be a minimum marketing unit for the rural economy A smaller unit than this would make trades of the village uneconomical This further presupposes that the villagers of this unit have a necessary minimum income (or a necessary minimum of cultivable land, say, 4/5 acres) It also assumes that farmers would not travel beyond this limit for marketing given packet of local needs.

Starting on these assumptions a market hierarchy of village centres can be conceived with different rank of villages with increasing population size, trade needs and distances. This can be said to be the optimum hierarchy over an area map. The minimum unit would be a village of the size of 1500 people with its local market. Now let us say that six such units (with a combined population of 9000 or two panchayats) can give rise to another

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marketing centre in their midst. This may be called the central village market with a population of 400 or more situated at a distance of 7–9 kms from its satellite units. Let us suppose again that six such central villages create a still bigger centre, the block mandi with a population of 10,000 or more and forming a radius of 17–20 kms with central villages Six such block mandis would feed a Zila market centre which may be a town of 3 lakh population, at a distance of 40 to 50 kms from the mandis.

This gives an integrated view of the net work of village clusters with implied interrelations between various units. Any reorganisation scheme of the rural sector has therefore to view the problem in such compactness. The above scheme can be tabulated.

Market centres	Population size	Market size	Size of different ranks of village centres			Distance
			Lowest	Middle	Highest	
1. Village	1500	1500	1	0	0	3 kms
2. Central village	5000	13500	6	1	0	7–9 kms
3. Mandi village	10000	81000	36	66	1	17–20 kms
4 Zila mandi	3 lakh	86000	216	36	6	40–50 kms

Rationale of the model

In the above model we increase the number of next lower order village by the power of six so that one market nucleus has sixs hadow markets This village scatter pattern in most states is actually too much skewed to non-viable ranks It will therefore be necessary to amalgamate the non-economic units to make the minimum operational sizes and to amalgamate the viable ones into higher rank sizes according to a distance map.

There may not be suoh uniformity in the structure due to topography and concentration of resources. But as there is even distribution of land resources generally the village system would be more nearly even. If the whole village sector shows greater potentials of development, there may be larger sizes of the village centres than in the model and there would be less numerous ranks (as is revealed in Kerala villages.) The poorer the development pull, the smaller will be the size of the centres with more numerous ranks

The rule of six however fits well in the three tier model of democratic decentralisation scheme of panchayati raj and may provide a starting point for village restructuring at each zila level. There may be a need of tresh outlook on this structure after sufficient development stimuli has been generated and the market structure starts changing. In that case the process of change may be partly automatic but some intervention in regional structuring would always be necessary. □

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1 V K R.V. Rao, An integrated approach to rural development, Yojana 15 Feb. 77
2. G Myrdal, Asian Drama, p. 880—Also D.R. Gadgil, Planning for Agricultural Development in India, 1960, p. 24
3 Rao, op. cit.
4. Andhra Pradesh Committee Report on community development, 1964 (where 5 miles distance between the gram sewak and extension officer and 15–20 miles between the gram sewak and B.D.O. was thought to be effective.)
5. The size would depend on nature of demand and scale of trade and requires more empirical investigations. In Christaller's

Eradicating Mass Poverty Through Integrated Rural Development

V. C. KOSHY

IN HIS CONVOCATION address delivered at the Indian Agricultural Research Institute, New Delhi (published in Yojana, 15–28 February 1977), Dr V K R V Rao has rightly stated that science and technology by itself cannot solve the problem of rural poverty He has also stressed that it should not be treated as a substitute for a more equitable distribution of productive assets among the rural households, the democratisation of the rural power structure and the creation of necessary consciousness and organisation among the rural poor ensuring their effective participation in the rural development process But, the solution offered by him for achieving the above objective through an integrated rural development approach are rather unrealistic

The strategy for integrated rural development as announced earlier was to provide gainful employment and increase the purchasing power of the rural poor through the application of science and technology It was sought to be achieved by making optimum use of locally available resources such as natural development potential, existing institutional infrastructure and the human resources by way of their participation in the programme This scheme was meant for the poorest of the rural poor, the marginal farmers, with land holdings upto one hectare, landless labour, village artisans and women. It was also intended to enable children to attend school by making it unnecessary for them to be engaged whole-time on income earning tasks

The major deficiency of this programme, however, is the over-emphasis on the technical solutions to the problems of mass poverty, unemployment and backwardness disregarding basic structural imbalances which gave rise to these difficulties. While the natural development potential such as animal, plant, soil, mineral and water are promptly recorded, the socio-economic relationship based on the ownership. If agricultural landed property is conveniently ignored It is necessary, therefore, to bear in mind that technical solutions can only form part of the total economic solution to eradicate poverty and illiteracy.

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Weak Industrial Base

We are a predominantly agrarian country with 80 per cent of our population directly dependent on land and half of the national income deriving from agriculture The Indian industrial base being weak is not likely to absorb the surplus labour from agriculture in the foreseable future In the agrarian sector, land being the main means of production, the pattern of land distribution would reflect the income level and poverty In a socio-economic system evolved around the inviolability of private property relations, it is the land ownership which determines the economic strength, social status and cultural distinctions which provide the power and influence in a rural society The Agricultural Census of 1971 has shown that 44 per cent of the agricultural population, that is 212 million people, together own only 9 per cent of the total agricultural land. While it covers 51 per cent of the total households, the top 4 per cent held 31 per cent of the operational land in the country Added to it is the 60 million agricultural labourers most of whom do not own any agicultural land and many without even a homestead There are also a large number of unemployed and under-employed living in a precarious condition.

Thus, the vast majority of the rural masses who either do not own any land at all or possessed very little of it are immersed in grim poverty and inequality. There is ample evidence to show that poverty has been continuously on the increase in our country. The number of poor had increased from 220 million in 1960 to 250 million in 1970 and 335 million in 1976 Even this assessment is based on a poverty line drawn on the per-capita monthly consumption expenditure of Rs 27 in rural areas and Rs 45 in the urban centres Similarly, the 27th round of the National Sample Survey 1973, recorded that out of a population of 545 million, as many as 120 million were severe destitutes, 175 million destitutes and 245 million poor. According to this survey, a severe destitute was considered to be one with less than 70 paise consumption expenditure in rural areas and 93 paise in urban areas Likewise, a destitute in the rural areas was one with less than 80 and a poor man less than 93 paise a day The respective figures for urban areas were Rs. 1 13 and Rs 1.43

The alarming dimensions of poverty has been further accentuated due to the rapid increase in unemployment and under-employment Though there are no accurate official figures on unemployment there are sufficient indicators which show that unemployment in India has reached dangerous proportions At the end of the Fourth Plan in 1974, the jobless persons numbered 28 million. At this rate, the Central Employment Directorate estimated the total unemployed to reach 60 million by 1978. It means, about 10 per cent of the population in the country is without any opportunity to participate in the process

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work the minimum size is 1000 and the distance between these units is 7 kms (with horse transport) The demand list, in preparing the lowest hierarchy, may include a school, a health centre alongwith essential consumption. (For some discussion see, K.K. Sinha, Regional Development and fiscal Policy, under print)

6. K.K. Sinha, Ibid.
7. For a structural study of panchayats, see K.K. Sinha & Uma Sinha, The Panchayat Strategy. A Developmental Viewpoint, under print.)

f production and out of these nearly /4th belong to the rural areas. his trend is also reflected in the atistics available with the Employ-ient Exchanges pertaining to the umber of registered job-seekers. It as gone up from 25 lakh in 1965 37 lakh in 1970 and 87 in ›75.

'hallenge of Inequality

It is in this light that we have to earch for ways and means to end overty. Our past experiences would how that the ever growing inequa-ty is the biggest challenge for radicating poverty. The Reserve ank Survey on inequalities in asset istribution sharply projects the alar-ning proportions of rural inequality. t shows that 75 per cent of the total ural assets are possessed by the 5 per cent upper strata while the owest 25 per cent of the rural house-olds share only 1.3 per cent The hare of the asset value of 50 per ent of rural households is a mere per cent. Hence, the gap between he rural rich and poor is so vide that it cannot be bridged by asy means The study emphasises hat since land held by the rural households account for the bulk of assets, distribution of land would be a prime factor in any scheme of *eduction in basic inequalities* But t's findings also reveal that efforts o reduce inequality through land reforms have not made any notable mpact

Under the existing semi-feudal agrarian structure in the country, he landlords, money-lenders and other vested interests take away the bulk of the produce from tenants, the minimum wages are not assured to the agricultural labourers and credit facilities and other imple-ments are not within the easy reach of marginal farmers. Hence, they cannot improve their economic position rather they are being further pushed down below the poverty line.

As a consequence of this relation-ship, the rural masses suffer different types of inequalities which vary from infrastructural to technical. The pattern of land ownership, the prevailing values in social relation-ship, the cultural lag between the elite and masses, etc are in the first category. On the other hand, technical inequalities and back-wardness are the by-products of infrastructural problems. They are lack of employment opportunities, technical skills, drudgery, under-employment and the like.

Therefore, a viable solution for minimising poverty should begin with eradicating basic maladies which have arisen owing to the structural imbalances It is ignored and solutions are to be found for the more technical difficulties, as being done in the integrated rural deve-lopment programme, then the pre-vailing structural relationship would continue to pose more problems than can be solved. Thus, a more equi-table distribution of the means of production should form the basis for any real solution. Agricultural property being the main source, *land reforms must be an integral* part of the scheme for rural deve-lopment.

Looking at it from this pers-pective, Dr. Rao's proposals do not seem to contain any real solu-tion to the basic problems involved Although he has mentioned issues such as re-distribution of rural assets, the necessity to break-up the rural structure and the need to organise the poor, his main emphasis has been on less important factors like the re-structuring of Indian villages on population basis, etc. This he thought would make a viable unit for absorption of the integrated rural development programme. The size of population considered by him as ideal for this purpose was 5,000.

Application of Technology

Even accepting, theoretically, that a given size of population in a definite area with certain natural develop-ment potential may be ideal for the application of science and technology, it should be borne in mind that conditions do not exist in the villages for not only shifting the population but even for changing their boun-daries. It would be impracticable to reorient our villages for the sake of applying the relevant tech-nology even for developmental pur-poses On the other hand, a more practical approach would be to adapt the technological innovations to suit the local needs and conditions. In any case, there should not be attempts to disturb the prevailing village set-up without being able to provide sustainable alternative programmes for rehabilitating the rural population.

Prof. Rao is also against accepting a 'census' village as the minimum basic unit for the programme of integrated development. But in the *20 districts selected for the integrated* rural development programme such a yardstick has not been used. It is not a village but a cluster of villages in a district which are con-sidered to be the most backward with a certain developmental infras-tructure that have been chosen to form the base for this scheme Similarly, the projects designed are not for any particular village as such but for a well-defined occupa-tional category who will form the human component of it Therefore, it is not the size of the village which is important but the capability of the project to successfully absorb the participant groups with a reaso-nable cost

He is also not in favour of distri-buting the surplus land that may be accrued from the landlords among the landless agricultural labourers. Instead he wanted it to be given to the marginal and sub-marginal farmers in order to make up their holding in to an economically viable one rather than adding to the number of marginal farmers It is true that the average size of an operational holding in this category is only 0.41 hectare, but there are a total of 36 million holdings which cons-titute more than half of the total households. As the land which is

likely to become available for distribution being meagre, it will not be sufficient even to convert a sizable number of marginal holdings into economically viable ones. On the other hand, if it is distributed among the 60 million landless agricultural labourers, it may give them a place to construct a hut and even some space for growing vegetables, etc. to meet their minimum daily needs Moreover, the possession and ownership of a patch of land, however small it may be, would give the landless rural poor some relief and a confidence to strive for a better living

Prof Rao has also touched upon the basic connection which exists between development and effective and motivated participation in the developmental process by the vast body of rural poor Taking up the case of marginal and sub-marginal farmers, he has rightly argued that such participation is possible only if there is a fundamental change in the existing rural power structure in regard to the utilisation of the facilities created by the government for rural development, and a radical alteration in the existing structure of ownership of land and other productive assets among the rural population Unless some radical steps are taken to bring about a more equitable distribution of the pattern of land and other productive assets in the rural areas, it would be difficult to bring about either integrated rural development or the abolition of poverty in rural India

Land to the Landless

The significance of utilising science and technology for developmental purposes cannot be underestimated Rather, its role and relevance for achieving progress and prosperity will have to be given due recognition It is a healthy trend that our scientists and technologists have began realising their rightful role in contributing to the economic advancement of the down-trodden people especially in the villages But what needs to be clarified is that the application of modern techniques and methods in the field will have to be linked with a programme for more basic solutions to the problems of the masses and it cannot be done in isolation. Therefore, it is necessary to take steps to ensure radical changes in the agrarian structure along with rapid development of household, small and large-scale industries

In the agrarian sector, the most pertinent issue is the distribution of agricultural land to the landless farm workers together with the implementation of other land reform measures. Once this is assured, it may be comparatively easier to arrange for the regular supply of implements necessary for modern farming such as improved seeds, insecticides, manures, and irrigational facilities. The farmers would also require timely and easy credits. The agro-industrial corporations, the co-operatives and the nationalised banks can assume responsibility to equip the farmers particularly the vulnerable sections with modern implements and other assistance The Agricultural Universities along with other scientific institutions all over the country can take up the challenging task of imparting training in skills not only in modern techniques for augmenting production but also from the point of view of the overall socio-economic and cultural development of the people

So far as land reforms are concerned, there are three different spheres of this programme. They are the abolition of intermediary rights on land, tenancy reform and fixation of ceiling on agricultural land holdings, take-over and distribution of surplus land among the landless agricultural labourers. In the post-independent India, legislations were enacted for all these in almost all the states, though it widely varied in content as well as in implementation Of the three different spheres of reform measures, a greater success has been achieved in abolishing the intermediary interests in land such as the zamindari, inamdari and jagirdari However, the huge compensation paid by the Government to the big landlords amounting to Rs 670 crores for abolishing the intermediary interests alone defeated the very purpose of breaking up the monopoly in land and concentration of wealth in the hands of a few individuals.

The tenancy reforms cover different aspects like providing security of tenure, fixation of fair rent and conferment of ownership rights on the cultivating tenants Though a plethora of legislations were enacted in several states, the implementation of it has been hopelessly lagging behind. Besides lack of security of tenures, forced evictions, concealed tenancies and several other arrangements such as share-cropping are widely prevalent throughout the country. The rent collected from the tenants is also enormously high in spite of the legal stipulations to charge only 1/5th or 1/4th of the total agricultural produce.

Slow Land Reforms

Of the several measures of land reforms, an issue of far reaching consequence is the restriction imposed on the ownership and possession of agricultural land and assignment of the surplus land to the landless labourers and poor peasants. According to an estimate made by Dandekar and Rath in 1970–71, the extent of surplus land in the country was put at 43 million acres. But as a result of the efforts made by the states over a decade only 12 5 lakh acres of surplus land could be distributed until 1972. The operational land in the country being 400 million acres, the land distributed formed a negligible 0.3 per cent. In five states, Andhra Pradesh, Bihar, Karnataka, Orissa and Rajasthan, not a single acre was taken over for distribution

The slow progress made in the land reform front on the one hand and the growing unrest among the landless labourers, share-croppers and tenants on the other had built up the pressure from below sufficiently high that the Congress Government at the Centre was forced to react quickly It was in this background that the Chief Ministers as well as the Central leadership decided in favour of revising the ceiling laws and paying lip service regarding its implementation The fresh directive recommended for lowering the ceiling area, redefining the family unit and removing some of the exemptions granted earlier But the implementation of these legislations also met with the same fate as that of the earlier ones Thus, the Congress Government had failed in bringing about any reduction in the wide disparity of land ownership in the country. On the contrary, the land concentration in a few hands has actually increased in states like Punjab and Rajasthan simultaneously with all the efforts to reduce it.

Exploitation of the Poor

Given the situation in the countryside, any programme for the upliftment of the rural poor will have to be carefully designed So long as the rural poor are allowed to remain subservient to the economically powerful people in the villages, the landlords, money-lenders and other intermediaries, who take away a major share of their earnings, the benefits accrued from the new investment will also easily fall into their hands. The same vested interests who have deliberately kept the people

away from the means of livelihood will not allow a programme for their rehabilitation to succeed as they would loose their grip over those whom they have been exploiting for long.

No doubt, the first non-Congress Government assumed office at the Centre is fully committed to end mass poverty, unemployment and illiteracy. This promise made to the people through the election manifesto has, been reiteraated in the Presidential Address delivered to the joint session of Parliament on March 28, 1977. Shri B.D. Jatti has categorically told the members that the new Government is pledged to the removal of destitution within a definite time-frame of 10 years The Acting President also assured that his Government would follow an employment-oriented strategy in which importance will be given to the development of agriculture, agro-industries, small and cottage industries especially in rural areas High priority would also be given to the provisions of minimum needs in rural areas and to integrated rural development.

These pronouncements have been spelt out in more detail in the manifesto of the Janata Party. For instance, the Party has a 'Dynamic Approach to Rural Development' under which the whole concept of Integrated Rural Development undergoes radical changes The new approach is to make agriculture itself more productive through proper land and water conservation and utilisation, agrarian reforms, mixed farming, animal husbandry, aquaculture, and the organization of agro and rural-based industries Therefore, in this scheme of things, land reform is a part of the programme for rural development and not outside it.

On the question of land reforms also the manifesto has categorically stated that the Janata Party is committed to agrarian reforms covering tenurial relationships, ownerships and consolidation of holdings. The party noted that owing to the tardy and insincere implementation of land ceiling legislation, the available surplus land declared, much less distributed, has been pitifully small It assured that the Janata Party will honestly implement land legislation, provide machinery for scrutinising fraudulent transfers and dispossession of and plug such loopholes as have come to light. Landlordism is to be abolished and the surplus and other reclaimed lands be distributed among the landless, particularly Harijans and Adivasis.

Two Pronged Attack

In view of these commitments and considering the urgency of the situation, the Government will have to quickly chalk out ways and means to alleviate the sufferings of the people. It will be easy to undo the political climate and fear created among the people by the previous Government. But the differences are going to surface when it comes to the hard economic choice. Removal of poverty and unemployment would much depend upon how fast the economy is developed and in what direction? It is both the rate of growth of the economy and the nature of growth that will have to be carefully regulated. In our country's pursuit of economic development during the last several decades, a large section of our people in the bottom category have been left far behind even without the basic necessities for a reasonably better living. It is these people who should now receive the primacy attention from the Government.

This can be achieved by a two-pronged attack through rapid agricultural as well as industrial development. Since the agrarian sector provides the essential infrastructure necessary for the immediate advancement, it has to be utilised without loosing time so that a large section of the rural population can occupy themselves in gainful employment. Much of the problems of rural poor can be solved on a long-term basis by giving them either land to cultivate or alternative avenues of employment, assuring fair wages to agricultural labourers and by relieving them of their debt burden which they have inherited from the past Therefore, the Government should move fast to implement the land reform measures which are already existing in the statute books first and in due course may modify them A quick and effective implementation of the land ceiling laws and distribution of excess land to the landless along with a portion of forest and waste lands can provide the basic infrastructure required for assuring a minimum livelihood to the bulk of the rural poor. It will release the creative energies of the people engaged in agriculture and thus, increase food production This will also ensure increased supply of raw materials to industry and expand the industrial base which can absorb the idle labour from the agrarian sector

Nevertheless, poverty cannot be eliminated through land reforms alone. The effort in the land reform front will have to be sufficiently supplemented by setting up agro and rural based industries as envisaged under the integrated rural development plan. A long-term solution would obviously lie in rapid industrialisation. Along with large and medium industries which are necessary for a sustained economic growth, the cottage and small scale industries will also have to be given proper attention. Only these industries can quickly absorb a large number of the currently unemployed people. Large capital-intensive modern factories have to be developed especially to provide basic supplies for the growth of the industria[l] units and of agriculture, but th[e] plan for such expansion must b[e] tempered with an awareness tha[t] for quicker expansion of both em[-]ployment and production a majo[r] emphasis has to be given to impro[-]ving cottage industries. Further, th[e] big and medium size industries whic[h] are of strategic importance for [a] balanced industrial advancement wil[l] have to be placed in the publi[c] sector.

The industries producing mas[s] consumption goods should invariabl[y] be run by the cooperatives and i[n] the public sector as far as possible It should be streamlined by streng[-]thening and extending an efficien[t] public distribution system This wil[l] help in a big way to keep the price[s] under control and reduce the mal[-]practices of hoarding and black marketing often resorted to by th[e] monopolists Elimination of th[e] chain of middlemen on trade wi[ll] also check the price fluctuations an[d] manipulations

The intense application of scienc[e] and technology will become mor[e] relevant in such a situation. Th[e] science and technology complex[es] modelled for the integrated rur[al] development programme would ac[-]tually form the nucleus of econom[ic] activity especially in the inaccessibl[e] areas These work-centres can the[n] cover the diverse needs of the com[-]mon people which vary from agr[i]culture to trade and health an[d] educational problems. The technolo[-]gical innovations would further be[-]come a boom to widespread us[e] of it for national reconstructio[n] Thus, an integrated rural develop[-]ment programme evolved on th[e] basis of such a socio-econom[ic] foundation can form the real alte[r]native for building up a sociali[st] society. [

Yojana Quiz

Yojana Quiz

1. The water of the Luni river is
   (*a*) Sweet
   (*b*) Salty
2. Who said, "Prisons are built with stones of law, brothels with bricks of Religion".
3. Who is the first Indian to swim the English Channel?
4. India's first dairy plant that started to process and pack milk in disposable polythene bags is at
   (*a*) Pune
   (*b*) Rohtak
   (*c*) Mandi
5. Which hydro-electric project will utilise the combined flow of Siul, Baira and Bhaledh rivers?
6. Decipher the abbreviations
   (*a*) WWW
   (*b*) SCI
   (*c*) NSSO
7. Kerala High court is at:
   (*a*) Trivandrum
   (*b*) Ernakulam
   (*c*) Cochin
8. How many players make-up a basket ball team?
9. How many waves are there in a beam of light?
10. How long do the following animals live?
    (*a*) Golden Eagle
    (*b*) Tiger
    (*c*) Giant Tortoise
    (*d*) Monkeys
    (*e*) Lizards
11. What is Schnorkel?

Answers

1. The water of the Luni river is sweet as far as Balotra, then it is brackish and by the time the river reaches its mouth the water becomes quite salty. 2. Blake in "proverbs of Hell" 3. Shri Mihir Sen, 4. (*c*) Mandi, Himachel Pradesh inaugurated on the 21st September, 1972. 5. Baira-Siul hydro-electric project. It will generate 180 MW. 6 (*a*) World Weather Watch, (*b*) Shipping Corporation of India, (*c*) National Sample Survey Organisation, 7. (*b*) Ernakulam, 8. Only five. 9. The number of waves a second in a beam of light varies according to the colour. The number of waves a second for some of the colours: Red 400 million millions; Orange 437 million millions; Yellow 509 million millions; Blue 696million millions; Violet 750 million millions. 10 (*a*) 104 years, (*b*) About 19 years, (*c*) 200 years, (*d*) 30 years, (*e*) 31 years (sometimes) 11. The Schnorkel is a device which enables a submarine to prolong its stay beneath the water. It was first used in 1944 by the German Navy.

Quotation Box

I have always respected the opposition even when I was in the Treasury benches. But after sitting in the opposition, I am now more convinced than ever that not only should the Government respect the Opposition but should also behave in a manner that the Opposition must behave.
..Morarji Desai

*

The Congress leaders are now talking of national reconciliation. It is the same story of the cat which after eating 100 mice is talking of going to Haj
...Charan Singh

*

Mr. Smith, in Rhodesia, and Mr. Vorster, and his sordid apartheid machinery in South Africa, have become the last fortress of imperialism, racialism and capitalism.
..Aboud Jumbe Mwinyi First Vice-President of the United Republic of Tanzania.

*

A Powell speech is worth reading and rereading
—Enoch Powell,

*

We have opened our hearts to India.
.Major-General Ziaur Rahman

*

Although communication must be free from prejudice, it must have a definite purpose.
—L.K. Advani

The Monarchy is a labour-intensive industry.
—Harold Wilson

* *

The best liars generally become actors, or join the foreign service, or go into politics. Diplomats and politicians justify their lying by talking about the "national interest", lying for one's country is considered a patriotic duty.
...William Davis in Punch

* * *

What the hell is the office of Prime Minister? I am more concerned about my place in history.
. Z.A. Bhutto

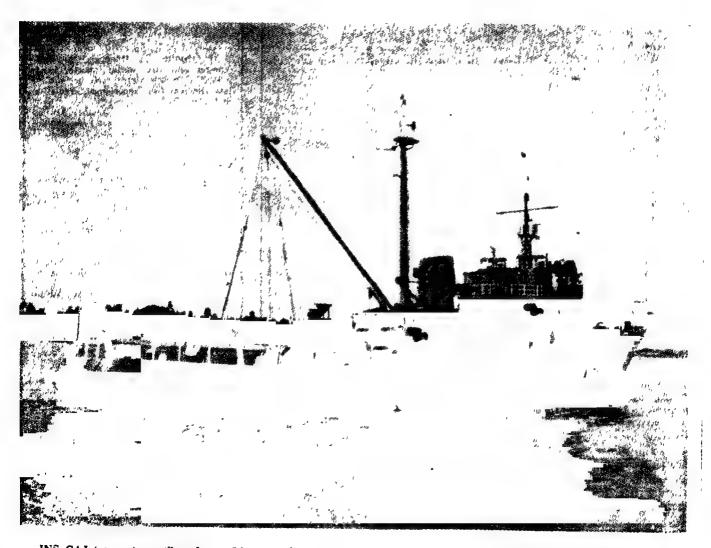
* * *

We all agree that pessimism is a marhk of superior intellect
..Professor J.K. Galbraith

GARDEN REACH—

From Workshop to an Industry

IT WAS IN the second half of the 19th century when a small workshop was started on the east bank of the Hooghly, south of Calcutta, with a river frontage of almost a kilometre. The workshop known as Garden Reach Workshops was set up primarily for the purpose of repairing the ships calling at the Calcutta Port It has steadily grown over the years and was taken over by the Ministry of Defence, Government of India in 1960. Since its takeover, GRW has acquired the finest specialised equipment and skills to emerge in the Indian sub-continent, as one of the leaders not only in the ship building and ship repairing industry but also a pioneer in designing, manufacturing and commissioning of highly sophisticated equipment and systems for various industrial complexes being set up in the country.

Fittingly renamed recently as Garden Reach Shipbuilders & Engineers Limited, it has now the capacity to build medium size ocean-going ships, large and sophisticated tugs and dredgers of various kinds and other specialised ships, largest capacity diesel engines in the country, provide systems engineering and equipment for conveyor systems and manufacture sophisticated equipment for various industrial complexes in the country With the increase of its diversified activities over years, the strength of its manpower has increased from 4280 in 1961 to nearly 9500 in 1976 in its eight plants located in Calcutta, Ranchi and Nagpur. The majority of these employees are professional engineers and highly trained technicians with long experience. The main yard of GRSE covers an area of about 20 hectares Here it has two building docks and three shipways supported by structural and fabrication shops, grey iron and non-ferrous foundries and machine shops with the most modern machinery and equipment. The diesel engine unit is located at Ranchi while its mechanical unit is at Nagpur

INS GAJ the most versatile and powerful ocean going tug with a ballard pull of 40 tons built by GRSE for the Indian Navy.

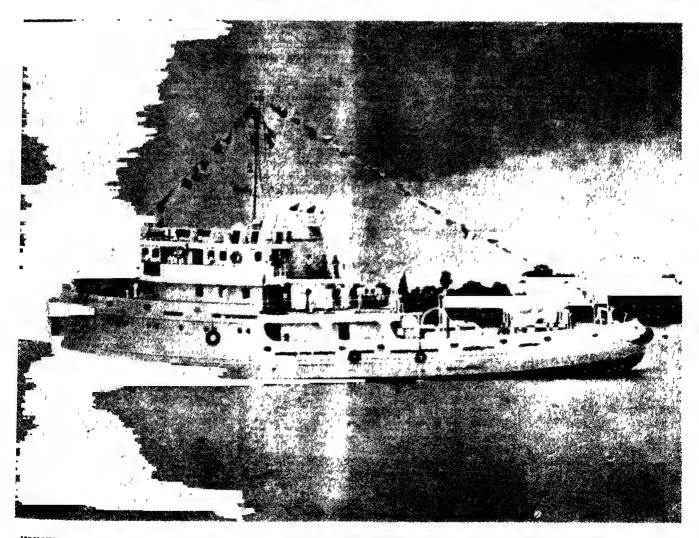
P. B. RAY

Calcutta Correspondent

The growth of the workshop is henomenal not only in respect of s increasing diversified activities ut also in terms of its value production. From a little over Rs. 20 million in 1960–61 the value of its roduction has increased to Rs. 392 nillion in 1975–76 and is expected o reach Rs. 511 million in 1976–77. According to the latest Annual Report 1975–76, GRSE not only achieved record production during he year giving growth rate of 34 per cent over the previous year, but also became a profit making unit fors the first time in many years. A tatement of production for the last 5 years is given below to indicate he steady growth of GRSE

The total value of fixed assets of GRSE are well over Rs. 210 million. With fully subscribed and paid up capital of Rs. 140 million, it has also launched an expansion plan at an additional cost of Rs. 140 million. Under the plan one of the existing dry docks has been converted into a building dock for construction of large ocean-going ships up to 28000 DWT; a fitting out jetty, shipbuilding structural equipped with electronic plate cutting machine, an optical drawing office and a large grey iron foundry have been built. As a result of the radical changes during the last decade, an infrastructure has been

Value in Production (In lakhs of Rupees)

Activities	1972-73	1976-77 (Projected)
Ship-building	393 04	222.63
Ship-repairing	246.84	352.00
General Engineering .		
Marine Diesel Engines	76.37	999.08
Conveyors	95.90	215.51
Road Rollers	85.32	102.00
Cranes	186 56	154.54
Steel Plant Equipment	284.43	333.83
Deck Machinery	45.42	91.85
Pumps	101.38	153.00
Miscellaneous	157.11	482.91
Total	1672.37	5110.33

KUNTI—one of five entirely indigenously built harbour tugs built by GRSE for the Calcutta Port Trust. These tugs will be used for berthing the oil tankers at Haldia Port.

Left : MAHAGANGA—Asia's largest dred[illegible] used in the estuary of Haldia.

Right : 1800 mm shiftable conveyers of 8000 GRSE for Neyveli Lignite Corporati[illegible]

Below : 26000 DWT Bulk

built with the most sophisticated technological equipment and know-how.

Ship-building

There has been significant progress made in the sphere of ship-building by GRSE during the last few years The value of ship construction has increased from Rs. 39.3 million in 1972–73 to Rs 163.9 million in 1975–76 and is expected to rise to Rs 222 5 million in 1976-77. The most outstanding venture of GRSE in this direction is to start construction of the first of the three bulk carriers of 26,000 DWT to be built for the Mogul Line Ltd. The unique features of these bulk-carriers are .

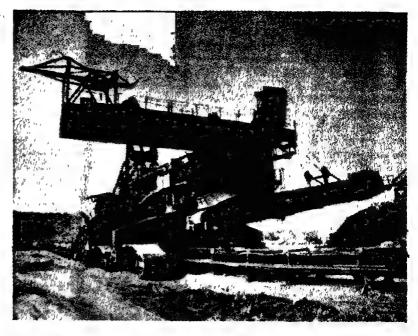
(a) For the first time a large ocean-going vessel has been designed in this country without foreign collaboration
(b) Eighty per cent equipment will be indigenous
(c) The carriers will be able to call at all ports in the country. GRSE has also received orders for bulk carriers from the India Steamship Co Ltd , a privately owned shipping Company.

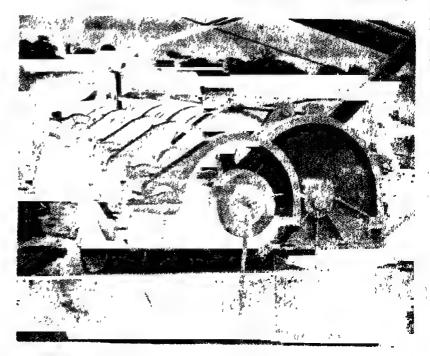
Besides building merchant ships, GRSE is giving support to the needs of the Indian Navy. Three Seaward Defence Boats are under construction at the yard This boat fitted with modern sophisticated equipment is a high speed Naval Craft for constant

Left . GAVESANI—India's first research ves[illegible]

Right : Central winch complex. Deck machi[illegible]

onstruction at GRSE yard. This dredger will be
acity for transporting overburden manufactured by

nder construction at GRSE yard.

patrolling and harbour defence duties This is the first major effort to produce an indigenous warship tailor-made to the requirement of the Indian Navy. GRSE has also built for the Indian Navy the most versatile and powerful tug, 'INS GAJ' ever built in India with a ballard pull of 40 tonnes INS Sandhayak, the first of a series of three survey ships that will be built for the Indian Navy has been recently launched. This survey ship will be employed in the important task of Hydrographic Survey and also some limited amount of oceanographic work.

Recently a hopper barge has been converted into an Oceanographic Research ship, R V GAVESANI, the first of her kind ever built in the country. This Oceanographic Research Ship has been recently delivered to the National Institute of Oceanography, Goa. She is completely redesigned and fitted with all sophisticated equipment providing air condition accommodation for 50 of the crew, 19 scientific personnel, separate refrigerator stores for domestic provision and scientific materials and five laboratories. A flume stabilizer tank has been fitted to the ship for the first time in India. This is a new area where GRSE has acquired expertise knowledge in designing and constructing Oceanographic Survey and Research Ships to meet the need of the country.

l by GRSE for National Institute of Oceanography.
itted on board manufactured by GRSE.

The biggest Dredger, MAHA-GANGA built in India for the Calcutta Port Trust was launched in May 1976. The construction of this Estuarine Dredger with a length of 140 M and capability of dredging to a depth of 20M and with a hopper capacity of 7500 tonnes of spill in 75 minutes marks a significant achievement of GRSE. Eighty per cent of the equipment being fitted is indigenous. GRSE has also completed the delivery of the five Twin Screw Kort Nozzle Harbour Tugs built for the Calcutta Port Trust.

Ship-repairing

Regarding ship-repairing, GRSE has got the technical knowhow and experience of undertaking repairs of all kinds of various types of ships including warships, which can come into Calcutta harbour The value of ship-repairing work has increased from Rs. 24.6 million in 1972–73 to Rs. 35.2 million in 1975–76. In 1975-76 as many as 321 vessels/crafts were attended to. The repairing work included the major refit to INS Krishna, for the Indian Navy and extensive repairs to M.V Chanakya, 'Rama, 'Deshdeep', 'Andamans' and 'Kalinga'.

The need for ancillary machinery and equipment that are required to be fitted on board of a ship has been felt for a long time. In its relentless effort to manufacture those equipment and machinery as a drive for import substitution, GRSE has made use of specialised skills to manufacture those engines and machinery and equipment It has pioneered the indigenous production of Marine Diesel Engines and Deck Machinery in India

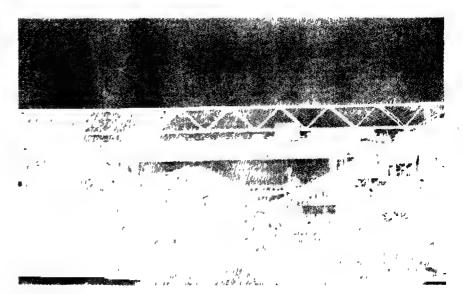
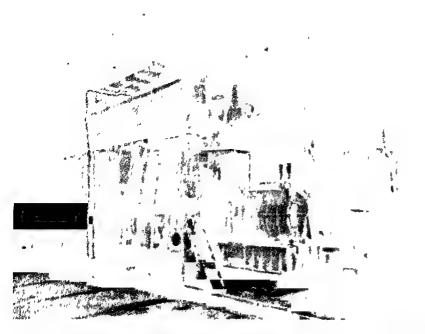
(a) *Marine Diesel Engine* · Plants have been set up in Ranchi and Calcutta to manufacture diesel engines. At present GRSE is manufacturing slow speed, medium speed and high speed diesel engines which are used for main propulsion, as generating sets (stationary and marine) and as marine auxiliary engines These engines have been supplied to many shipyards for main propulsion of ships and to commercial organisations for use as generating sets These engines are being fitted with ships being built by GRSE

(b) *Deck Machinery* With a view to meeting the need of ancillary equipment required for the normal operation of shipboard systems, GRSE has embarked on the production of deck machinery items like windless, capstan, steering glass etc. in collaboration with Messrs. AEG of Hamburg. West Germany. In addition to the items covered by this collaboration GRSE has developed and manufactured special dredging machinery. control winches and ladder winches for cutter suction dredgers, barge loading and barge warping winches and suction type hoisting winches for dredgers and constant tension winches for tugs, towing hooks, life boat launching gears, deck cranes and electric equipment for deck machinery

A view of Asia's heaviest conveyor system built by GRSE at Visakhapatnam outer Harbour.

General Engineering

The activities of GRSE are not confined to the field of ship building and ancillary equipment but also cover the manufacture of the items in the general engineering field In order to meet the growing demand in the country for indigenously developed sophisticated technological equipment and structures for atomic research, steel plants, chemical plants, process industries, and for engineering services needed by industrial complexes coming up in various parts, GRSE has expanded its activities significantly in this direction The efforts have helped to save a considerable amount of foreign exchange. The work handled by the General Engineering Department of GRSE ranges from estimation, designs (including import substitution), planning and manufacture to the actual commissioning of the equipment at the site A highly sophis-

A view of the Heavy Duty in operation at Bokaro Steel Complex manufactured by GRSE

The largest capacity diesel engine with 10,500 BHP built by GRSE for main propulsion of ships.

icated "Resonator Tank" for Bhabha Atomic Research Centre and accessories for their Variable Energy Cyclotron Project at Calcutta have been manufactured by GRSE

Steel Plant Equipment

GRSE has recently made significant progress in the manufacture of sophisticated technological equipment for steel plants, fertilizers and chemical industries and refineries A bulk order for 8000 tons of technological equipment has been completed for the first phase of the construction of the country's biggest steel plant—Bokaro Steel Limited in Bihar. A repeat order for 6500 tons of similar equipment is currently under execution for Bokaro's 2.5 million ton and 4 million ton expansion programme. In addition, it is executing work for other steel plants like Bhilai and Rourkela Units of Hindustan Steel Ltd

(b) *Material Handling Equipment:* GRSE has recently started manufacturing conveyors to meet the requirements of the Coal Mines Authorities, National Mineral Development Corporation, Neyveli Lignite Corporation and Visakhapatnam Outer Harbour Project. The 1800 mm wide, 1.8 km long conveyor having a capacity of 8000 TPH has been recently commissioned for carrying over burden in the open cast mine of Neyveli Lignite Corporation Ltd. For transporting iron ore at the rate of 8000 tons per hour the 9 km conveyor system, Asia's largest and heaviest conveyor system for Visakhapatnam Outer Harbour was commissioned in December 1976. In fact, it is the second largest conveyor in the world.

With expertise gained over the years, GRSE has developed the latest crane technology. It is already one of the India's leading manufacturers of steelmill duty cranes without foreign assistance. It has manufactured Wharf, Goliath, Level luffing and other types of cranes It is the largest supplier of EOT cranes of capacities ranging from 5 to 50 tons to Bokaro Steel Ltd Cranes up to 100 ton capacity have been manufactured by GRSE. It also manufactures special crane attachments such as motorised grab units and double barrel grab buckets with capacities as large as 5 3 cubic metres.

GRSE also manufactures Fork lifts with a carrying capacity of 2 to 3 tons. These Fork Lift trucks are powered by Perkin Diesel Engines. These are entirely indigenously developed and not dependent on any imported components.

(c) *Miscellaneous Engineering Items :* GRSE offers pumps, both vertical and submersible, built on sound technical knowhow acquired through long experience and extensive research spread over 20 years. These pumps have the capacity range from H5 litres, 20,400 litres per minute. These are suitable for use both in tubewells in size of 95 mm to 600 mm and open wells. Rotary Air Compressor made by GRSE has been widely accepted for its superior features such as large capacity low discharge, smooth operation, light weight, compact design and simple construction. Pressure vessels and heat exchangers and equipment allied to process, chemical petro-chemical and fertilizer industries are also manufactured by GRSE. The 8 to 10 Ton Road Roller made by GRSE is now extensively used for building roads, dams, airport runways and other compaction duties.

Exports

The efforts and activities of GRSE have greatly contributed to the saving of valuable foreign exchange by way of import substitution. It is now taking active part in earning foreign exchange by exporting many engineering items to the foreign countries. Recently GRSE has supplied transportable bridges to neighbouring countries and earned foreign exchange to the tune of Rs. 30 million A large number of Garden Research Deepwell Turbine Pumps have recently been exported to the Middle East countries Substantial orders for these pumps have also been received from Bangladesh and Srilanka GRSE has also supplied Road Rollers to Libya

The journey from a mere workshop to an Industrial Complex may be a long one associated with initial pangs and constraints of diversification but full of exicting achievements. In less than a decade the face of the workshop has undergone a radical change. The organisation which was a mere ship-repairing workshop a few years ago has been turned into a shipbuilding ship-repairing yard and a medium heavy engineering unit in the eastern region of the country with a brighter future ahead. □

The Concept of Lokpal

S J SORABJEE

Good Government is the aim and the ultimate justification of any State which stands for the welfare of its citizens.

The hallmark of a welfare State are :-

(1) integrity of administration. This implies absence of corruption and improper conduct;

(2) efficiency and effectiveness of administration. This can be ensured in two ways. Firstly, by eliminating administrative procedures or practices governing administrative action which is unreasonable, unjust and oppressive and, secondly, by eliminating negligence or undue delay in taking administrative action The laws delays and the incidence of office are the source of many an ill of the citizens, and last but not the least securing the liberties of the citizen in a prompt, inexpensive and informal manner

Experience shows that the success of a good government is closely linked with a high degree of civic consciousness We have recently had an outstanding example of the political consciousness and maturity of our people which should dispel any doubt or cynicism about their civic consciousness which is very much there and wants to assert itself, if only citizens had a trusted friend and protector

The institution of Lok Pal and Lok Ayukata may well provide the answer. "OMBUDSMAN is a Scandinavian institution Sweden was the first country to adopt it in its present form in 1899, followed by Finland, Denmark and Norway New Zealand, a common law country with a parliamentary form of Government, voted for it in 1962, and England adopted in 1966." Historically, in each of these countries, the mechanism has been adopted with one aim in view, viz to control the activities of, and prevent abuses by, official and administration after it was realised that the existing mechanism and procedures were inadequate for the purpose.

The Indian experience is no different. There has been oft-expressed public outcry against the prevalence of corruption, the existence of widespread inefficiency and the unresponsiveness of administration to popular needs The general belief in India is that officials and ministers are not to be trusted The average citizen rightly feels that questions put in Parliament, writing letters to his M.P. or to Ministers are not of much help, that the available judicial remedy is neither adequate nor efficacious in many cases because courts are hide-bound by limitations of procedure and technicalities Besides, very few can afford the high cost of litigation from court to court.

The Indian citizen like nationals of several other countries have the right of appeal against ministerial and official corruption and inefficiency. This function can be performed by the Lok Pal who should have investigatory powers to look into grievances.

What has been the Indian response? Way back in August 1966, the Administrative Reforms Commission in their Report suggested the adoption of the Ombudsman type institution in India.

A Bill was introduced in the Lok Sabha on May 9, 1968 to implement the recommendations of the Commission It was passed by the Lok Sabha, but while it was pending in the Rajya Sabha, the Lok Sabha was dissolved and the Bill consequently lapsed

A new Bill on similar lines was introduced in the Lok Sabha in August, 1971 This also lapsed on dissolution of the Fifth Lok Sabha.

Orissa, Maharashtra and Rajasthan are some of the States which have enacted laws on the same lines as the Central Lok Pal Bill

The Central Bill provided for the appointment of a Lok Pal by the President after consultation with the Chief Justice of India and the Leader of the Opposition in the House of the People. This is a salutary provision meant to ensure the confidence of Parliament in the Lok Pal. The term of office provided was 5 years. The Lok Pal could only be removed by the President on the ground of mis-behaviour or incapacity and on no other ground, and the procedure for his removal was the same as that prescribed in the Constitution for the removal of a Supreme Court or a High Court Judge. Under the Central Bill, the Lok Pal had authority to investigate any action taken by the Minister or a Secretary or any other public servant. The main work of the Lok Pal, as envisaged in the Bill, was investigatory and not adjudicatory. If after investigation the Lok Pal is satisfied that the complaint of corruption or mal-administration is justified, he is empowered to make a report recommending to the public servant and the competent authority concerned that such wrong shall be remedied within a certain time. If the Lok Pal is not satisfied that appropriate action has been taken on his recommendation, he can make a special report to the President. Furthermore, under the Bill, he has to present annually a consolidated report to the President and the President is required to lay both these reports before each House of Parliament These two bills, though not perfect, were steps in the right direction I would suggest that in a future law on the subject the restrictions placed regarding the areas into which the Lok Pal cannot inquire should be reduced and in fact effort should be made to make his teeth a lot sharper. Besides, serious thought must be given to include the Prime Minister also as one of the persons in to whose conduct the Lokpal can enquire. Let us not forget that it is of public importance that the public men failing in their duty must be exposed and then face the consequences either in Parliament or in a court of law

One of the strong objections urged against the establishment of a Lok Pal is that it would conflict with ministerial responsibility. This objection is ill-founded. In the first place, there is no principle which requires that the Minister must have exclusive responsibility for investigating the lapses of his Department. Administrative justice de-

Shri Sorabjee is Additional Solicitor General of India

non-political system of investigating individual complaints against the powers that be. This is exactly what ministerial responsibility does not provide. Lok Pal and Lok Ayukta would certainly be thorns in the sides of the powers that be. But that surely cannot impair the principle of ministerial responsibility. It would rather ensure accountability.

Furthermore, experience has shown that not all Members of Parliament are effective grievance men. The growth of party discipline and the prominence of partisan attitudes in defending the performance of governments, tend to create an unfavourable atmosphere for the calm consideration of individual complaints and of the best ways for dealing with them.

Commissions are often appointed under the Commission of Inquiries Act to inquire into actions of various Ministers, for example, the Das Commission inquired into the affairs of the Kairon Ministry in Punjab. No one suggested that this was a violation of ministerial responsibility.

The other objection that Lok Pal would encroach upon judicial functions of the courts is also untenable The essential features of Lok Pal are to investigate, criticise and in some cases to publicise but not to reverse administrative actions The purpose of Lok Pal is not to adjudicate but to provide regular machinery for investigating grievances against the administration in a discreet and informal way In fact, it is the informality of approach which is one of the main advantages of this system Besides, it is precisely because courts of law are unable to provide relief in several spheres that the Lok Pal steps in. Take for example the fundamental right of equality and non-discrimination guaranteed by our Constitution. The equality principle is the basis of every civilized society and in our country where pulls and prejudices on account of caste, creed and religion operate powerfully, the need to weed out discrimination is paramount. The court's powers, however, are limited because the guarantee of non-discrimination can be enforced only against the State which, as defined by the Constitution, means Central or State governments and local authorities and bodies exercising quasi-governmental powers. Consequently, courts are unable to do anything about the prevalance of discrimination in public institutions such as universities, hospitals, statutory corporations and bodies performing public functions and duties. This is precisely where the Lok Pal should look in. The future law on the subject should make adequate provision for these situations so that civil liberties do not remain parchment promises but are experienced as living realities More-over, the Lok Pal is not the monarch of all he surveys with his right there being none to dispute. In appropriate cases, should he over-step his limits, he can be brought within the supervisory jurisdiction of the Supreme Court and if there is any doubt about this, a provision can be made to that effect.

Lok Pal is not only curative, but also preventive. He does not only give relief to the aggrieved citizen, but also induces more care in the administration in taking a decision In short, he keeps the officials on their toes Also, to the extent the Lok Pal holds a large number of complaints insubstantial, to that extent the image of the administration is improved, the faith of the public is redeemed and the administration stands vindicated. The public remains satisfied. Even if no relief can be given in a particular case, the mere fact that an independent authority has reviewed the matter gives great satisfaction to the complainant In many cases in other countries, the Ombudsman has found that the complaints arise because the complainants fail to appreciate reasons behind a particular administrative decision and if the same are explained to them they feel satisfied. The Lok Pal, therefore, has an important public relations aspect. The crisis of confidence between the administration and the public could be the negation of good administration and the Lok Pal seeks to avoid it.

The success of the institution will depend greatly on those who are called upon to discharge the function for it is they who, more than the legislative enactment, will really carve the place this institution is to occupy in our system of government. It person selected should be one who is known for his sturdy independence and fair-mindedness. Accordingly, it would be eminently desirable that no active politician is appointed to this office, because, as the age-old dictum reminds, us, justice must not only be done, but must manifestly seen to be done.

The two Bills introduced in Parliament did not provide for any qualification for the person to be appointed as Lok Pal. The Lok Pal will have to deal with many points of law in the course of his functioning. Though it is not necessary that the person to beappointed should have been a practising lawyer, it is necessary that he should have had some legal education—which is the requirement in Scandivanian countries—and that he should be in the opinion of the President a distinguished jurist—which is the same qualification as required for the appointment of a Supreme Court or a High Court Judge.

We rightly cherish Milton for his immortal sonnets and his great epics, but we tend to forget that it is also Milton who with visionary perception, uttered these words in in his *Aeropagitica* He said :

> "For this is not the liberty which we can hope, that no grievance ever should arise in the Commonwealth—that let no man in this World expect, but when complaint are freely heard, deeply consider'd, and speedily reform'd, then is the utmost bound of civil liberty attain'd that wise men looks for."

One of the wisest and noblest men in our country Shri Jayaprakash Narayan in his recent broadcast to the nation said that the establishment of an autonomous body that may be known as Lok Pal was his first expectation from the Government. The citizens of India have waited long and expect the Government to fulfil this expectation without any further loss of time, and thereby strengthen democracy and generate a clean political life in our country.

Courtesy : AIR

Among the much-talked of tax reforms in developing countries the Value Added Tax has come to occupy a prominent place. It has materially benefitted the tax structure in many developed and developing countries and has also led to more efficient use of capital and human resources in these countries

VAT AS A TAX REFORM

SUBHASH J. RELE

VALUE ADDED TAX (VAT) has had a chequered and interesting career. It took birth in 1954 first in France. It emerged as a result of the French authorities continuous improvisation with their sales tax structure. The countries in the European Economic Community adopted it as part of their fiscal harmonisation programme, which created great interest in this form of taxation throughout the world. It was introduced in the U.K. in 1972 and despite opposition, it was selectively introduced in the U.S.A. in 1973. In India the Central Excises Reorganisation Committee (1968) itself recommended a detailed study of the French model of VAT "with a view to exploring the possibilities of re-modelling the excise tariff structure in India when conditions for it are more favourable."

What exactly is VAT?

The idea of VAT is very simple. Unlike a multi-stage turnover tax or excise duty, VAT is applied to the value of a product everytime it is sold in the process of production or distribution. It is assessed at each stage only on the increase in value acquired by the production since the last taxable transaction. Under this system of taxation, "the sum of the values added at each successive stages is equal to the final price of products and the sum of the tax paid at each successive stages will be the same at the tax which would be payable if it were charged on the full value of the final product and collected as a single payment." *The essential features of the VAT is that it makes it compulsory for a manufacturer or trader to preserve all ingredients of the document of expenses in an accurate form as to be able to claim rebate for taxes paid by him earlier on his input.* It is the most productive form of sales tax employed in the developing countries. Its revenue varies between 10 and 30 per cent of Government revenue and exceeds about 2 per cent of gross domestic product.

Shri Rele is Editor 'Industrial Times'.

The tax due by a business firm is computed by applying the relevant rate to total sales during a given period, deducting from the result the amount of tax already paid by the firm in buying intermediate products and capital equipment. In principle, however, the VAT is conceived as one that extends to the retail stage and to virtually all sectors of the economy, including services. In some of the developing countries it departs considerably from the European model of a comprehensive, relatively uniform, neutral taxes on the consumption of goods and services. It is significant that all of them employed the tax credit device in applying the value added principle. Services are normally taxed in all these countries except in Brazil and Ecuador.

As an Alternative to Excise Duties

The VAT can be introduced as an alternative to excise duties or sales or corporate profit tax, or even as a supplement to each or all of them. In our country excise duties have become very predominant in the financial weaponry of the Union Government. They have been yielding the highest absolute amount of revenue as well as the highest preparation of the tax revenue. In 1940–41 the relative significance of Union excise duties as percentage of total revenue was 4.70 per cent; today it has jumped to 68.50 per cent (Budget Estimate). The number of commodities has increased from 5 in 1940–41 to 75 in 1975–76. The major question is: Will VAT do away with most of the complexities associated with the existing system of excise duties? Since VAT is ad valorem in nature, the presen[t] combination of specific/ad valore[m] excise will disappear. Secondl[y,] though VAT is multipoint tax [it] is not cumulative in nature, henc[e] the elaborate system of exemption to mitigate the multipoint effec[t] of excise duties will cease to exis[t.] Thirdly, it eliminates physical supe[r]vision at various stages of productio[n.] This is considered to be an advantag[e] since it facilitates the extension [of] the tax to a greater variety of com[]modities without adding too muc[h] to the cost of administration.

Replacement for Sales Tax

Most of the countries that hav[e] so far adopted the VAT have don[e] so in place of sales tax of some kin[d.] These have either been a multip[le] stage gross turnover or single stag[e] sales taxes at the manufacture [or] wholesale or at the retail leve[l.] In view of their complexities sal[es] taxes in India cause annoyance an[d] hinderance to the free flow of goo[ds] both within and between the diff[e]rent States. All the disadvantag[es] attributed to the cumulative turnov[er] taxes in general are applicable [to] multipoint sales tax. The VAT [is] a sales tax levied on the value adde[d] to a product or service each tim[e] it changes hands. This makes [it] quite akin to the single stage sal[es] tax as far as its impact is concerne[d.] Hence it is preferred by many cou[n]tries. The oft-repeated argume[nt] that VAT is difficult to administ[er] does not stand scrutiny and pa[st] experience. The countries whic[h] had adopted it found it difficu[lt] only in the initial stages. The co[st] of collection was not heavy compare[d] to the advantages it could give.

Substitute for Corporate Profits Ta[x]

Many in our country have no[w] veered round the view that VAT [as] a substitute for corporate profi[ts] tax has innumerable merits. A[s] early as 1955 a study by TA[]

Quarterly pointed out that several anomalies in our corporate profits tax could be rectified by the introduction of VAT. It said:" VAT when applied to corporations differ from the VAT when applied as indirect tax on commodities in one significant respect. When used as an indirect tax on commodities, the residual value added on which the tax is levied, is arrived at by deducting from gross sales the value of the purchase of raw materials, power, fuel etc. on revenue account. When VAT is sought to be introduced as a substitute for the corporate profits tax, the value added is calculated by deducting from gross sales not only the purchase of materials on revenue account but also depreciation Therefore, if VAT were to substitute the existing corporate profits tax system, the base liable for taxation would embrace not only profits but salaries, wages, interest charges and rent as well Under the corporation tax, the base is only "profits" whereas under the VAT the base is value-added Under the corporate profits tax, since the tax is levied only on profit, the less efficient firms which make no profits, but use national resources are spared, but the firms which make profit by an efficient utilisation of national resources are penalised. Again, even among the efficient firms the more efficient have to bear the tax at the same rate as the less efficient firm In effect this means corporations that are not profitable get a tax advantage relative to those that are profitable This is not fair to the profitable and more efficient corporations By adopting the value-added as the base, all the units will come under its purview, irrespective of whether they make profits or not"

Efficient Utilisation of Resources

From this the argument follows that VAT particularly in a country like ours will lead to efficient utilisation of capital and human resources. It will naturally bring about an increase in the net capital formation in a country by releasing investible resources to the efficient or to the more efficient sectors of the economy. It will give special encouragement to the management of corporations to economise on their expenditure particularly on wages and salaries It also provides an incentive to economise in the consumption of raw materials as well. One great advantage as far as India is concerned is that under VAT the corporations will be discouraged from indulging in a variety of wasteful expenditures as they are tempted to incur under a heavy corporation tax No tax system can compete with VAT in certain built-in advantages. For the efficient corporations incentive to invest will increase as they will be able to retain a larger share of the profit made from such new investments; simultaneously, their capacity to save will grow as lower tax rates will enable them to save more in the form of retained profits Their dividend-paying capacity will also improve. VAT falls on imports but exports are exempted Like purchase tax, VAT is not only charged directly, but unlike purchase tax, provides machinery for rebating tax entering indirectly into export costs If adopted in India, it will make our exports competitive in international markets thereby leading to an increase in export earnings. This will help improve our balance of payments position.

VAT automatically provides opportunities for cross-checking because each tax-payer is legally liable for the full amount of the tax and can reduce that tax liability by proving that tax has been paid on his purchases Since the tax is collected in fractions at different stages of production and distribution, there is less temptation to evade it

RBI Study

The Jha Committee and our policy-makers can take relevant lessons from an empirical study published in the recent issue of the Reserve Bank of India Bulletin. The study concludes that the tax on value-added in lieu of corporation tax, or a supplement to corporate profit tax is a relatively more feasible proposition under the existing Indian conditions than VAT (it calls it TVA) as a substitute to sales tax or excise duties. The study argues that the introduction of VAT as a supplement to corporate profit tax can be relatively less cumbersome and it would be a tax with high-yielding potential as a small change in the rate can be expected to yield large revenue to the Exchequer The study discussed some general problems which have to be tackled when thinking of actually introducing this tax reform in India First although the developed countries avoid taxing investment goods, this may not be an advantageous policy for developing countries like India. The study feels that the VAT suitable to Indian conditions need not be of the capital-exempting type, but rather of the type which would encourage labour-intensive production techniques. Second, there may be need for special provisions for small businesses. Large numbers of small tax payers can be kept outside the purview of the tax by excluding these sectors where they predominate. Or, alternatively, small businesses can be either exempted or can be assessed differently on the basis of a simplified system.

Third, an efficient administration of VAT needs backing by a suitable system of tax-payer registration. The developed countries are experimenting with better registration and numbering system using electronic computers, and simplified payment and collection procedures through the use of postal cheques or 'gire' system The study observes that well-conceived VAT based on the invoice system and backed by proper registration system can, besides introducing efficiency in the administration of tax, provide an amazing set of financial data on the inter-sectoral transactions within the economy

Overhaul of Taxation System

There is a widely held view that the introduction of VAT in India will entail a complete change "not only in the existing philosophy of corporate taxation but also in the approach to Indian economic growth" The Jha Committee will have an unenviable task in recommending the tax base which will be satisfactory and equitable So also determining a particular type of tax whether consumption, net income or gross profit. Though consumption type is adopted in many developing countries it may not be suitable for India Another poser would be Should VAT cover the agricultural sector? If so, how? Another difficult task would be that of how to strike a better balance between the yield from direct and indirect taxes without reducing the Government's revenues Since VAT is a comprehensive tax, reliefs reduce revenue and complicate administration The significance of this must not be lost sight of by the Jha Committee In fact, it would be advisable to lay down stringent criteria for reliefs Some classes of transactions can be given reliefs by subjecting them to a lower rate of tax than the standard rate

Other Side of the Coin

Doubts have been expressed in certain circles that the VAT, if introduced in a country like India, may

(*Contd. on page* 37)

TECHNOLOGY FOR SMALL FARMERS

I. J. NAIDU

AS BULK of the masses in India live in the country side the main hub of planning process has been agricultural development, other activities of rural development being built around it, ever since the beginning of the First Five Year Plan. Various steps have been taken to achieve the objective of higher agricultural production and it can be said that the first major step taken in this direction was the launching of the Intensive Agricultural District Programme (IADP) in 16 selected districts spread over 15 States during 1960–62. Alongside the IADP, another programme known as the Intensive Agricultural Areas Programme (IAAP) was taken up in 117 districts in 1964–65 During mid-sixties,a major break-through in agricultural production was achieved by the introduction of High Yielding Varieties Programme, which was launched on a large scale from Kharif 1966 in an area of 730 thousand hectares under conditions of assured water supply. This strategy has resulted in more than doubling the food production in the country compared to the level in 1950–51. This is obviously a result of combined efforts of planners, scientists, extension workers and the farmers. While there is no doubt that agricultural production is on the increase, it has also been realised that the gains from technology went mostly to the well-to-do farmers, who not only had easy access to technology but also to credit which enabled them to get higher yields per hectare of land The result was that disparities in rural incomes were accentuated by way of big farmers getting richer and the small farmers not getting their share of the benefits of this Green Revolution.

The All India Rural Credit Review Committee set up by the Reserve Bank of India which submitted its report in the year 1969 pointed out these lacunae and suggested that specific measures be adopted to concentrate on the weaker sections of the farming community. The Committee made a comprehensive analysis of the data available from various sources and came to the following conclusions :

"It is, therefore, all the more necessary that the less affluent cultivators should be enabled, through state and institutional support, to improve their production potential and levels of income by adopting improved agricultural practices. If the fruits of development continue to be denied to a large section of the rural community, while prosperity accrues to some, the resulting tensions, social and economic, may not only upset the process of orderly and peaceful change in the rural economy but even frustrate the national efforts to step up agricultural production".

The Committee, therefore, suggested that special agencies may be set up in the country, to first of all, identify (a) special problems of the small farmers as producers, (b) the means by which they can be helped to overcome the handicaps and render their farm economies viable and commercial, and (c) the arrangements by which these means can, in fact, be provided.

The recommendations of the above Committee formed the basis for a large programme of small and marginal farmers development taken up in the country during the Fourth Plan period. This Committee also outlined the approach to be adopted and the efforts to be made in dealing with the problems of small farmers in these Agencies. To quote the Committee, "This effort is obviously restricted to those cultivators who can be developed into surplus farmers if they adopt improved techniques on the basis of support in terms of supplies, irrigation, services of machinery etc. Appropriate schemes have to be drawn up by technical experts with reference to local resources and requirements, so that such cultivators can undertake specific line of investment (e.g. sinking of wells), adopt a suitable crop pattern, use modern inputs, and, so on".

It was on the basis of the above recommendations that Small Farmers' Development Agencies were set up to deal with their problems by formulating specific programmes for crop husbandry, subsidiary occupations and other related activities in order to improve their incomes. Alongwith these SFDA schemes, it was, felt that Marginal Farmers and Agricultural Labourers Agencies should also be set up with accent primarily on subsidiary occupations and employment generation as they could not achieve viability through crop production alone The first full year of working for all these projects can be taken as 1971–72 though some were set up earlier During the IV Plan, 46 SFDA projects and 41 MFAL projects were set up in the country Each SFDA had an outlay of Rs 1.50 crores and was expected to cover approximately 50,000 identified small farmers. Each MFAL project with an outlay of Rs. 1.00 crore was designed to cover 20,000 marginal farmers and agricultural labourers. The Project had a five year period of operation starting from 1971–72.

There has been a shift in the approach to the problems of small farmers and marginal farmers in the Fifth Five Year Plan. This has come about mainly due to the recommendations made by the National Commission on Agriculture in their interim Report on Re-orientation of Programme of Small Farmers, Marginal Farmers and Agricultural Labourers Development Agencies The examination by the National Commission was in the context of securing social justice and equality of opportunity for the poorest of the weaker sections by ensuring their effective participation in the stepping up of agricultural production. The Fifth Plan objective of reduction of poverty was also kept in sharp focus On the basis of the recommendations of the National Commission on Agriculture the changes introduced in the SFDA MFAL programmes in the Fifth Plan relate to (i) merger of SFDA and MFAL Agencies to have a composite Agency catering to small farmers, marginal farmers and agricultural labourers in the same area of operation, (ii) emphasis on crop husbandry, with subsidiary occupations being superimposed in selected districts. Under a separate Centrally Sponsored/Central Sector Scheme of the A.H. Divn. in the Unio

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Deptt. of Agriculture, (iii) adoption of area approach for implementing some of the schemes like land development, soil conservation, irrigation and water harvesting techniques to extend benefits to small/marginal farmers with subsidies from SFDA funds, and (iv) provision of necessary infrastructural facilities like extension support, processing, marketing and storage and custom service by the State Govts. supporting such activities out of their plan funds

The programme of small farmers development is only a part of the overall objective of helping the weaker sections to increase their incomes The problem however, is of a much greater dimension if one looks at the total population which comes under the category of small and marginal farmers, i e those owning less than two hectares, as can be seen in Table I

TABLE—1

Size group	No. of Operational Holdings (Millions)	%	Area in Ha. (Million)	%
Marginal (Less than 1 ha)	35 7	51	14.5	9.00
Small 1–2 (Hectare)	13.4	19	19.8	12.00
Total All size	70 5	100	162 1	100 00

(*Source* -*Agril Census Report* 1975)

It would thus be seen that nearly 70 per cent of our agricultural holdings are operated by small and marginal farmers covering between them only 20 per cent of the total area cultivated. The existing 160 SFDAs aim to cover 10 million or 20 percent of the total small and marginal farmers in the country In addition to the magnitude of number, the problem is accentuated by the fact that most of these farmers, particularly those in unirrigated areas, live below the poverty line. The majority of the small and marginal farmers are reckoned as being below the minimum standard of consumption of Rs 20 per capita per month at 1960–61 prices, and Rs. 37 at 1971–73 prices (Source NCA Report) In such a situation the need for a strategy of development for this category of farm families cannot be overemphasised Increasing inequalities in the levels of income of different sections of the rural society are bound to generate social tensions and retard our efforts to achieve our goal of growth with social justice.

Besides the efforts directed towards the development of small farmers in the 160 SFDA project areas in the country, similar approach has been adopted under other Central Sector/Centrally Sponsored Schemes like Drought Prone Areas Programme, Command Area Development Programme and Tribal Area Development Programme In these projects also the respective agencies are making available subsidies to small/marginal farmers and agricultural labourers on various developmental activities as in the SFDA areas Thus, there is an all prong drive to improve the economic level of the weaker sections in the rural areas by involving them in the developmental activities. There is no denying of the fact that increased productivity leading to higher income and increased employment opportunities is dependent upon the following four crucial pre-requisites.

(i) Appropriate technology and its transfer to farmers

(ii) Efficient input supply system including credit,

(iii) Adequate processing, marketing and storage net work, and,

(iv) Well developed extension service

Whereas all the above factors would help in increasing productivity on the farm, among them development and transfer of technology can be considered as the basic requirement before the other factors come into play to help increase production. There is no doubt that scientific knowledge in the field of agriculture has made significant advances in the past decade or so, particularly after the advent of the high yielding varieties of paddy, wheat and hybrids of jowar, bajra and maize Although, the Green Revolution resulting from the adoption of high yielding varieties has, by and large, benefited the bigger farmers, it has been established beyond doubt that the new technology is neutral to scale and that small farmers have been able to produce results comparable to those obtained by bigger farmers through rational use of various inputs What is really needed is the proper transfer of new technology to the small farms supported with other measures like supply of inputs, arrangements for marketing, processing and above all, suitable extension support

New Technology cannot be taken as static In fact, the scientists and technicians are constantly engaged in reviewing the new technology in the background of agro-climatic conditions obtaining in different parts of the country with a view to bring about further refinements for achieving best results The role of agricultural egineers cannot be underrated in this kind of exercise as they would be connected with all the farm operations right from the preparation of the land up to post harvest technology Agricultural engineers and scientists, therefore, need to work in close collaboration to review the adoption of the new technology with reference to any given set of agro-climatic conditions.

With the modernisation of agriculture, introduction of high yielding varieties of seeds, multiple cropping and adoption of dry land farming techniques farming now requires full time attention of the cultivators, whether big or small. The cycle of various operations, for example, land shaping and levelling, optimum utilization of water, lay-out of field for irrigation, placement of seeds and fertilizers, spraying and dusting of pesticides, etc. do not really leave much time to the farmer, and, in fact, make it more difficult for him to manage all the operations in time in view of the demand for labour during peak periods This necessitates mechanisation of operations to a certain extent without displacing agricultural labour from the rural areas, ensuring simultaneously that all the necessary farm operations are carried out in time according to recommended schedules Farming in India is carried out under varying agro-climatic conditions and involves a wide range of operations and management practices. Agricultural engineers have a crucial role to play in the development of agriculture whether under irrigated or rain-fed conditions. Whereas some of the small/marginal farmers have limited animal power, others do not have even that source of power and have to depend on their neighbours. Therefore, mechanical contrivances would be wel-

comed by small farmers provided the investment is modest and it is possible to acquire them by obtaining credit from institutional sources. Keeping the above in view, the approach will have to be for selective mechanisation of small farms to get over the problem of labour shortage during peak periods. Development of suitable farm implements and machinery for adoption on small farms has to go hand in hand with the transfer of connected technology to the small farmers The extension organisation at the field level is no doubt charged with this responsibility but it is necessary that the agricultural engineers continue to feed such an organisation with the latest information to help in the modernisation of agriculture If this vital link is not established development of farm implements and appliances would remain confined to the agricultural workshops

Another important aspect to the transfer of technology to small farmers is to provide necessary infrastructure of servicing, maintenance, repairs and supply of spare parts in respect of power operated as well as animal drawn agricultural implements and equipment. It has to be admitted that though much attention is being paid to the manufacture of implements, etc very little is being done for their proper repairs and maintenance A small farmer can ill-afford to run often to the city to get his equipment repaired for the simple reason that he does not have the financial resources or the time to do so It is, therefore, imperative that such facilities are provided up to the last point This can be achieved only through efficient after-sales service in the rural areas.

There are many farm operations like tractorisation, land levelling, harvesting, threshing etc, which it may be difficult for a small farmer to carry out on his own and he would be happy if any organisation could help him in carrying out such farm operations on payment of service charges Although the State Agro-Industries Corporations have been providing facilities of this nature they have not still percolated to many of the interior areas. The Agro-Service Centres set up by young entrepreneurs have been rendering useful service to the farmers but even their coverage is limited for the present. Much more remains to be done in this regrad

The task of improving productivity of small farms and improving the economic level of the weaker sections is a stupenduous one Agricultural engineers have a crucial role to play in this task This all-India Seminar on "Technology for Agricultural Development" may like to consider the various problems with special reference to transfer of technology to small farmers

The following specific issues may be taken up for discussion by the Seminar

(i) Modernisation of agriculture on small farms depends upon proper transfer of new technology. Problems in this connection with reference to agricultural implements and machinery require to be considered.

(ii) New technology is not static. A constant review of the technology in respect of different agro-climatic conditions is necessary. How can this be done ?

(iii) In view of the labour shortage during peak seasons and non-availability of animal power, small farmers require suitable mechanical contrivances. The implements and equipment have to be simple and within the reach of small/marginal farmers. What can be done in this connection ?

(iv) Extension organisation should be constantly apprised of the latest information in the development of agricultural engineering How can such a link be established between agricultural workshops and the extension organisation ?

(v) Provision of suitable infrastructure for servicing, maintenence, repairs and supply of spare parts in the interior areas—present status and further improvements that need to be brought about

(vi) Provision of custom service to small/marginal farmers—adequacy or otherwise of coverage by Agro-Industries Corporations and Agro-Service Centres by entrepreneurs and further extension of this facility □

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wants to know whether the rule of the few by the fewer for the fewest can be called caucusocracy.

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CMHL-2

BEEDI WORKERS OF MADRAS CITY

A Socio-economic Survey

Conducted By

The New College Planning Forum, Madras

MADRAS, THE FOURTH largest city of India, covers an area of 143 square kilometres. According to the 1971 Census, its population is 2,470,288. The people are employed in various industries both small and large. The beedi industry is one of the cottage industries which has been flourishing in the city for over 60 years. Beedis made in Madras are exported to a number of foreign countries. The socio-economic set-up of beedi workers is entirely different from those of other workers.

This survey was conducted by the New College Planning Forum, Madras. It lasted two months and 64 students took part in it. They were divided into eight groups and each group was under the charge of a senior student of the Post-Graduate class. The entire work was directed by Mr. Syed Badre Alam, Vice-President of Planning Forum and supervised by the principal and president, Prof. H Md. Mohideen.

The members covered 1126 families of both North and South Madras. The divisions surveyed are (1) Royapettah, (2) Triplicane, (3) Washermanpet and (4) Perambur Barracks, where majority of the beedi workers reside.

A detailed questionnaire covering various aspects such as income, employment, literacy, savings, expenditure, indebtedness, family planning, knowledge of five year plans etc. was prepared. A majority of the beedi workers barring few exceptions showed enthusiastic interest in supplying the data.

Analysis of the Data

In the manufacture of beedis the raw materials required are tobacco, beedi leaves, thread and labels. These are provided to the workers by the factory owners. The total equipment of the beedi workers, which is quite simple, costs only Rs. 9.

It was found through survey that 1126 families had a total population of 5868. Of them, 2732 were males (53.6 percent) and 3136 females (46.4 percent).

The following interesting figures were obtained from an analysis of the data procured

Number of earning members	No. of families	Percentage of the total families surveyed
1	297	26 4
2	609	54.1
3	133	11.8
4 and above.	87	7.7

In 54.1 percent of the families husband and wife work together. Only 26 4 percent of the families depend upon the earnings of one person and the average size of such a family consists of 6 persons and its whole income is spent for consumption alone. In 19.5 percent of the the families i e. 220 families, it was found that even children and old people are employed.

The survey revealed that most of the workers received tobacco leaves, thread and labels from the beedi factories. They work in their own residential areas with no time limit. Some families commence their day's work early in the morning and finish it off in the evening. Every day they get their wages for their output. The family is the unit, and they all work together irrespective of sex and age.

Size of Income

The following table points out the monthly income of the families surveyed:

Amount of monthly income	No. of families	Percentage of these families to the total families
Income upto Rs. 100	146	13.0
From Rs 101.. to 200	492	42.8
From Rs. 201 to 300	384	34.8
From Rs. 301 and above	104	7.4

From the above figures it can be noticed that 87 percent of the families earn more than Rs 100 per month. The average monthly income per family is Rs. 216 There are 18 families who get an income of about Rs 600 but the number of members employed in that family is on an average 4 They get daily wage on piece rate basis A worker usually makes 1000 to 1500 beedis a day. In some cases production is 2000 a day but the worker has to work for 16 hours

The average income of the family reveals a state of abject poverty. The Beedi workers unlike others, do not get any bonus and there is no security of employment or any other source of income for them. If they work, they get income, if they do not work due to illness or other reasons, they have to starve. The system of wage rate is piece rate. For each 1000 beedis made they are paid Rs. 3.50 to 4.50 depending on the size of the beedi. Even after working for 16 to 18 hours a day the wage one gets does not exceed Rs. 10 Their condition is pathetic indeed.

For most of the families there is no subsidiary source of income. But for 87 families beedi work is a subsidiary source of income. For the rest of 1039 families beedi making is the main source of income.

Level of Literacy

It is revealed that among the families surveyed 48 percent of the males are literate. But in case of females the percentage of literacy

is only 11 percent For both the sexes, the average percentage of literacy comes to 28 2 percent. 26 heads of the families who have studied upto S.S.L.C. are engaged in beedi work. Some of the families employ children from 8th year onwards in beedi making. These boys are not sent to schools In reply to a question, the parents said, "no money, no food, no clothes". These children supplement the family income

Of the 1126 families surveyed, 948 families are Muslims Out of the 948, 814 families are Urdu speaking Muslims and the rest are Tamils. 6 Christian families are engaged in beedi work. About 112 families belong to scheduled caste The rest are caste Hindus

Housing

Out of the 1126 families surveyed, only 186 families live in their own houses The remaining 740 live in rented houses The average rent paid by them is Rs 28/- per month

Since the houses are one roomed, there is no privacy It is pathetic to see a single room being used by 9 members for cooking and sleeping

There is no pucca street, most of them are lanes Some of the lanes in Washermanpet area are filthy and full of rubbish surrounded by gutter water Some of the members of the survey team hesitated even to entering these areas

Of the total families surveyed only 112 families have got separate latrines and bathroom facilities A majority of them share common bathrooms and latrines.

Of the total dwelling units surveyed but for 216 houses the rest are not electrified, the reasons being low income and most of them being without proper walls Hence, most of the families use kerosene lamps. For cooking 227 families use kerosene stoves, and others use fuel

Only 203 houses have proper ventilation. The remaining have no ventilators, no doors or windows Some of the entrances are so low and narrow that one has to bend down to enter. The pond near the graveyard used by the beedi workers for washing their clothes is a breeding ground for mosquitoes

Of the families surveyed only 46 families have got their own taps, others get their drinking water from the Corporation taps

Savings and Indebtedness

The survey revealed that only 54 out of 1126 families make some savings The amount of saving ranges from 5 to 10 percent of the income 42 families have invested their saving in jewellery. Only 22 families have got account in the banks and post offices.

Majority of the families revealed that they are deeply immersed in debts During the days they remain idle or are sick, they generally live on borrowings It is disheartening to note that 72 percent of the families borrow money from pawn brokers The security provided by them is either brass vessels or silver ornaments. Six families stated that they even pawned sarees to get a loan Most of them confessed that they never redeemed the mortgaged articles 11 percent of the families revealed that they pay an interest of Rs 10 for every Rs 100 borrowed One family stated that it pays an interest of Re 1 every week, on Rs 10 borrowed

Pattern of expenditure

The following table points out the average percentage of expenditure incurred by the families surveyed

	Families with monthly income upto Rs. 300	Families with monthly income above Rs. 300
Rice	64	60 6
Wheat	4	6
Millets	2	Nil
Provisions	6	7
Tea	6	5
Fuel	6	6.7
Recreation	3 4	5 8
Rent	6 6	6 5
Other expenditure	2	2 4

The figures reveal that almost all expenditure is unproductive and mostly spent on necessities

Eighty two percent of the families reported that they often visit cinemas during the weakends The main recreation therefore to them is cinema and 62% of the families visit Hindi Cinemas 29 families have radio sets and 16 families have got transisters

It has been observed that 58% of the families are in the grip of narcotics including chewing of tobacco.

Family Planning

Only 642 heads of the families responded to our queries on family planning Others were reluctant to answer Of the 642 families 126 are in favour of birth control, and the rest disliked or even criticised the idea of birth control. Some of them are in the habit of using oral pills or contraceptives and some adopt self-control. Some believe that child is the gift of God and to prevent it is a sin. Some of the family members are reluctant to undergo vasectomy and tubectomy operations 15 families are not at all aware of the family planning programmes Six families have already adopted family planning, and undergone vasectomy.

Of the 1126 families surveyed only 86 families know about the Five Year Plans Only 246 families are aware of the proclamation of Emergency.

Suggestions

The above analysis reveals the pathetic condition and the numerous problems faced by the beedi workers of Madras

To improve their lot it is necessary that beedi workers must form co-operative societies. Government agencies must provide adequate finance, and also help them in the formation of co-operative societies It is surprising that the co-operatives department has not so far made any attempt in this direction

Regarding the child labour, proper directions through legislation can be given to the workers that no boy or girl below the age of 18 be employed in beedi work The boys and girls must be sent to schools

It was observed that most of the workers are unhealthy. It is because of their low income and also because of their working conditions It is amazing to note that the Tamil Nadu Slum Clearance Board which has cleared a number of slums, has not done much to benefit the beedi workers The living conditions of Papu Masthan Durgah and also beedi workers in Washermanpet are in no way better than the other slums which had attracted the attention of the slum clearance Board It is therefore, suggested that the Tamil Nadu Slum Clearance Board must come to their rescue and help them to live decently.

Considering the amount of time devoted and the job undertaken the rates paid to them are very low. It is suggested that their wages must be enhanced from 4 to 4.50 per 1000 beedis to atleast Rs. 6 to 6.50 per 1000 beedis. The government can also fix a minimum wage in consultation with the management and the workers

(contd. on page 36)

A Utilitarian Estimate of Scavengers of the Sky

AMIT BANERJEE

ONE MAY shudder after reading Daphne Du Maurier's spine-chilling horror story 'Birds' or after seeing its portrayal by Alfred Hitchcock on celluloid. But frankly speaking, there is nothing so ghastly about these feathered creatures When we leave aside Maurier's figment of imagination and look at bare facts, we find that birds help mankind in many ways Whether as killers of insect pests, rats and other vermin, or as scavengers and seed carriers, they perform several useful functions

Jean Henri Fabre, the French naturalist said hundred years ago that but for birds, famine would kill 75 per cent of the people in the world Birds are mainly responsible for keeping the insect and locust populations in check Insects proliferate very quickly. The colorado-beetle, which is also found among Indian crop pests, would without check increase to 60 millions in a single season. The scourge of the locust in well-known Large locust swarms are sometimes so thick that the sun is blotted out They cause immense damage to standing crops and an average swarm eats more than a million kilogramme of food each day Then there are certain flesh-feeding larvae, who consume 200 times their original weight in a single day

Birds help farmers by capturing myriads of insects harmful to crops The bluet it, which is one of the smallest birds in the world, catches 6 million insects in a year. The smallest bird—the humming-bird, also consumes huge quantities of insects. The wood-peckers destroy caterpillars, wood-boring beetles, sap-sucking aphides and other insects which lark in tree crevices. Another featured tribe–the night-jars devour the flies and insects which flutter around the udders of goats and cattle It is easy to imagine the losses that farmers would suffer if these birds were not there

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With the advent of winter, birds leave the cold north and migrate to warmer haunts in Africa and Asia Some of them, like the swallows and the storks cover enormous distances during their migratory flights By fixing numbered rings to the birds' legs, their migratory routes have been traced out by ornithologists

The migrants are not only great fliers but are also great insect-eaters A swallow flies 400 miles a day and devours, as it flies, innumerable winged insects Most of the other migrants–the wrens, warblers, robins and swifts capture their food while on the wing In order to meet the energy requirements for swift aerial movement, they feed on insects at regular intervals from sunrise to sunset

The rhinoceros has two little bird friends – the Indian courser and the African oxpecker These two birds largely have an insect diet and feed on leeches and other insects which bother the monster. Then there are the little egrets, who billet themselves on large animals, such as the bison and the Hippopotamus and rid them of Ox-warbles, botflies and other insect pests The tsetse fly, which causes sleeping sickness in men as well as cattle is also kept in check by some other birds.

Birds of Prey

Birds are also very helpful in keeping down the population of rats and other vermin The rats are more sinning than sinned against. According to estimate of the Indian Pesticide Association, rats damage foodgrains worth about Rs 750 million per year in our country Every year 10 to 50 per cent of the entire rice crop is lost through the ravages of this rodent.

Rodents also destroy currency, clothes and even electric wiring. And worst of all, it is the carrier of plague The rock-rats depredations are well known: it feeds mainly on seeds and flowers and causes immense damage to tiny saplings. The rock-rat has been primarily responsible for hampering afforestation in the Aravalli hills.

Moreover, rats breed very fast and a single adult pair can produce several thousand little ones within a year In the absence of any effective Rodent Pest Control, the owls, kestrels and hawks constitute very important checks on the rodent population On an average, a single owl eats two rats a day A British study undertaken some years ago reveals that owls take on an average 10,000 rodents per sq km in one year.

The Arctic owls are the sworn enemies of the lemmings These little rodents of the vole family breed to such an extent that every few years they are forced to migrate from their over-populated areas in search of food. As they move across the country, eating food-crops on their way, the Arctic owls swoop down on the migratory hordes and eat them up Thus the Arctic owl performs an useful function.

Owls are also very useful to clover-growers Owls devour field mice, which attack the humble bees' nests in search of bee-grubs. Clover is pollinated only by the humble bees and without humble bees, there cannot be any clover seed Thus clover cannot b egrown without the assistance of owls.

Besides killing rats, owls also devour snakes. The long-legged Secretary Bird from Africa performs a useful service by eating poisonous snakes. This bird takes its name from the crest of feathers at the back of its head, which look not unlike quill pens stuck behind the ears

Scavengers of the Sky

Condors, vultures and black kites act as efficient scavengers of the animal world. They feed on carrion-dead birds and beasts and thus perform a very useful function in the rural countryside, where there is no sanitation. The digestive system of these birds kills even the most virulent germs. Nature has endowed them with heads, which are almost free of plumage and thus these scavenger birds are not fouled by the carrion they eat

The Hyenas of the feathered world as the vultures are known, detect the carcasses on which they feed by sight rather than by scent These carrion-feeders descend on the carcasses in hordes and eat everything, leaving behind only the bones These carrion-birds' capacities for eating dead flesh are well known; a group of the white-backed Bengal vultures can devour the flesh of a dead elephant in a single day.

A Spanish veterinarian, Dr F S Irigoyan has set up many "Vulture Restaurants" in Navarre Province in Spain, where carcasses are provided to vultures. This has been done in order to save the declining vulture population in that country

The adjutant storks, marabou storks and crows eat all kinds of refuse from the garbage heaps in villages and towns They also eat dead rats, snakes and lizards Then there are the sea-gulls, who scavenge the sea-coasts for offal left by the receding tides They also pick up

edibles that may be floating on the sea

Birds as Pollinating Agents

Besides being efficient scavengers and useful checks on pests, birds also act as pollinating agents The little humming birds help in the pollination of vanilla orchids and certain red flowers. Birds help many seeds to travel The terns often build their nests on the flattered tops of giant Pisonia trees. The Pisonia fruit is covered with a sticky substance, which sticks to the birds' plumage whenever they alight on them. When the terns migrate, they carry the seeds to other places to form new plantations.

A similar function is performed by the wading-birds. The seeds of water plants are carried from place to place in a piece of mud sticking to this bird's foot It is interesting to learn that a ball of earth taken from the foot of a partridge and kept unbroken for three years produced 80 plants when watered regularly

Birds also carry seeds inside their bodies Charles Darwin had once written to a friend 'a seed has germinated after twentyone and a half hours in an owl's stomach This would carry it God knowns how many miles' Bright coloured berries, such as hips, haws, yews and hollies are eagerly sought by many birds; they eat and digest the pulpy covering to the seeds, while the latter pass unharmed through their digestive systems Thus seeds may travel many miles before they are dropped by the birds to form new plantations in distant places.

In order to ensure our own survival, we must protect our avifauna from trigger-happy hunters The use of the camera has immensely increased our opportunity for enjoying and studying birdlife It is high time we realise that there is much more satisfaction in shooting birds with a camera than with a gun. □

Beedi Workers

(*Contd. from page* 34)

The old grave-yard which has been now occupied by the beedi workers at Dr Natesan Road must be cleared of the beedi workers, and the Government must take adequate measures to rehabilitate them, while preserving the sanctity of the grave yard

The analysis of their indebtedness clearly shows that the beedi workers are also the victims of money-lenders and therefore it is suggested that co-operative societies that can be formed in their areas, must be multipurpose ones. The societies must provide a minimum amount of Loan to them Further, the workers must be educated to avoid unproductive expenditure. The workers must be advised to develop the saving habit The rate of savings is evidently low Publicity for the National Savings Schemes must be done amongst the workers

Most of the workers have reported that they disliked beedi making and therefore it is necessary to see that atleast their sons and daughters get into some other jobs

As most of the family members of the beedi workers are unhealthy free medical check-ups and assistance should be extended to them both by official and voluntary agencies

Lastly, it is suggested that just as barbers and washermen have been declared backward by Government, same privilege can also be extended to this economically and socially weaker section of the society. □

Railways Rolling Stock Programme

The Railways have been allotted Rs 5308 million for their works, machinery and rolling stock Programme for 1977-78.

This amount includes Rs 28 million to meet the working capital for manufacture of Rolling stock for export Rs 120 million for investment in State Road Transport Undertakings, Rs 188 million for the Metropolitan Transport Projects and Rs 10 million for investment in the Indian Railway Construction Company Ltd.

In the Annual Plan for 1977-78, the share of new lines and restoration of dismentled lines is Rs 235,8 million. Of this Rs 216,8 million are earmarked for the 16 project-oriented line and Rs 19 million for 10 developmental lines. The allocation for electrification projects is of the order of Rs 190 million.

Problems of the Rural Poor

"Rural Labour in India" Problems and Policy Perspectives : *Edited by S.M. Pandey. Sri Ram Centre for Industrial Relations and Human Resources : New Delhi-5*; *Pages* 300; *Price Rs.* 45

IT IS SAID that a Seniore Economist when questi ond about the unique property of Economists remarked that if all the Economists were joined end to end they would still be pointing in all directions ! If proof of this was needed—one had only to browse through the present volume which was the outcome of a Seminar on rural labour organised by the Sri Ram Centre at Ludhiana in January, 1976 The Seminar was designed to generate knowledge about the problems of rural labour including evaluation of various measures taken by the Government to ameliorate the conditions of the rural poor Four crucial themes covered in the Seminar relate to (i) Employment and Work aspects, (ii) Income, Indebtedness and Consumption Pattern, (iii) Agrarian relations.organisations and problems of special groups, and (iv) Special Schemes for the rural poor. Some twenty-one papers contributed by agricultural economists and social scientists provide a generous measure of knowledge even if it contained well recognised and conflicting empirical evidence

It is neither feasible nor necessary to examine the many complex issues discussed at the Seminar most of which have policy relevance It is this aspect, however, that holds the readers' interest and distinguishes the present Seminar from similar other efforts under more academic auspices. The Reporteurs Notes and Discussion summaries presented sessions-wise at the end of the volume help to pinpoint the more important issues. The Seminar has provided yet another opportunity for debate on the impact of new technology on rural employment; some fresh rounds of ammunition to the already sizeable volley of fire that has been directed at the green revolution The burden of argument with varying emphasis however is that increased growth of farm output is accompanied by declining labour input, decreasing labour cost and share in output with inconsequential impact on employment. However, as summed up by the discussion leader such development is only to be expected in the context of increasing productivity of labour. But even this finding is contravened by the evidence of other contributors who have pleaded that employment particularly of the hired category has grown with the new technology.

Books

Experience in regions like Rajasthan and U.P would suggest extension of the new technology to increase both income and employment which have complementary relations and not competitive as some would have us believe

The use of input-output analysis also points to a similar conclusion, that is, increased direct and total employment and employment per unit value of output. The employment policy prescription is that if we can keep out labour saving farm mechanisation, increased productivity (not of higher labour intensity) would enable larger employment. But then labour intensity and productivity are themselves products of new technology as has been pointed out by other contributors. All this adds up, no doubt, to the overall beneficial impact on employment and incomes through adoption of new technology.

The theme income, indebtedness and consumption pattern has also attracted five papers including one by the Editor. The macro level evidence presented in the papers substantiate the well-known feature of rising money wages of agricultural workers Real wages have gone up only in Punjab and Kerala where higher level of development and better organisation of labour have contributed to this phenomenon. The comparitively better position of agricultural labourers as against small farmers, the differential growth of average income and expenditure per household, the decline in rural indebtedness are some of the other observations made by the participants The analysis however fails adequately to bring out the specific impact of the special schemes to improve the rural poor. On the contrary we are treated to a general comment as the need for designing an appropriate technology and institutional system for the small farmers and landless labourers. What this technology or optimum mix up technology, should be is rarely spelled out and few concrete suggestions if any, have been offered for implementation. To an extent the data drawn from secondary sources like N S S. Farm Management Studies etc with their known differences may have inhibited such efforts

In conclusion we may best refer to an observation made by one of the Sectional Chairman that no major significant resolutions on the issue of impact of technology had come and opinion was also divided on the need for continuance or otherwise of the special programmes for agricultural labourers. But then, was it not the prerogative of the Economist to point in all directions?

K.S.V. Sanjeeva Rao

(*Contd. from page* 28)

have an adverse impact on the price level in the short run. They argue that this might cancel the other beneficial effects. The Jha Committee should examine the validity of this apprehension. In any case, if the Government continues to remain vigilant on the price front, the VAT will not disturb the price mechanism There is another argument forwarded against the adoption of VAT. Critics observe that for a small trade or firm, it is not advantageous. This is one of the many limitations of VAT. Second limitation is that it does not lend itself easily to exemptions of individual products and services. It has been the experience that all countries which have switched on to VAT have had to face transitional problems If introduced in our country, we cannot avoid transitional problems There is one system of corporate taxation which gives such an effective spur to companies to maximise their profits, productivity and investments as the VAT There is no logical and economic reason a to why we should not try it on an experimental basis □

New Dimensions in Cooperation

Co-operation and the Dynamics of Change *Edited by P.V Chinchankar and M V Namjoshi, Published by Somaiya Publications Pvt. Ltd, Bombay, First published* 1977; *Pages* 468, *Price Rs.* 90 00

THIS BOOK contains as many as 17 contributions out of which 6 relate to the cooperative development in the U S A, Japan, Yugoslavia, Israel, Sweden and Africa A highly stimulating piece of work the contents of the book lend credence to themselves very easily coming as they do from experts in the field

While bringing out the relevance of different branches of social theory for the analysis of cooperatives, the book throws up the basic ideas that are useful in evaluating the role of cooperatives in various countries A synoptic view of co-operation and change is provided in the total approach that has been adopted in the book The discussion on the new dimension in co-operation in developing countries clearly brings out the existence of this phenomenon

M V Namjoshi points out that there is considerable unanimity on the fact that under competitive conditions, the cooperatives would tend to act in the same manner as private enterprise, their sole aim being to equate average cost with average revenue and to maximise their surplus "Under such conditions, the cooperatives would hardly help to promote equitable distribution or to reduce prices. This is how the cooperatives would operate under the conditions of free enterprise, the condition assumed by Pantaleoni, Richard Philips and E Domar" Namjoshi, therefore, seems to believe that under the socialist and communist system, cooperatives can play an invaluable role, both as an enterprise and an association, in accelerating the process of social transformation and this view finds support in the approaches of Prof Lange and Rezso Nyers

On the issue of the Indian cooperative experience, it is said that it provides a new line with which other developing countries may feel inclined to experiment There is the continuing importance to linking economic planning and cooperative movement and this has been possible through identification of areas to which the cooperative movement is most suitable

P V Chinchankar observes that in a mixed economy system, the progress, achievements and potential of cooperatives are relatively greater than under other social systems which tend to either extreme Citing Israel as a good case, he further remarks that the Israeli system has combined cooperative development with State efforts to promote the process of social and economic change." Under this system, the cooperative movement is not engaged in transforming the existing economy but in creating a new economy and society The cooperative movement in Israel had started not in the sphere of consumers' cooperation as in Europe but in the sphere of production. This, in turn, has encouraged the promotion of workers' cooperatives which in combination with trade unions and political parties have provided strength to the movement "

Navin Chandra Joshi

Agricultural Development

Poverty, Agriculture and Economic Growth *by B M Bhatia, Vikas Publishing House Pvt Ltd New Delhi, Pages X* + 260, *Price Rs* 50

FOR OVER a decade now our economists have been exerting themselves to identify the causes of Indian poverty in the context of the low economic growth amidst our agricultural development policies and programmes The author has devoted long years on the vital questions of famines, food policy, social development etc. he has also been indefatigably advancing his view points as a detached scholar all along The book is a collection of a revised version of his articles contributed to the *Statesman* (December 1975 to June 1976).

A discussion of growth strategy is followed by sketches of the broad issues of world agriculture wherein both Soviet and Chinese experience in agricultural development has been clearly stated Many valuable insights have been supplied about the reorganisation of Japanese and U S agricultural development in relation to their adaptations under Indian conditions. The treatment of domestic agriculture covers the main thrust of the strategy, problems facing land reforms the use of technology, irrigation and credit problems including cooperative credit and issues of agricultural taxation The major issues of our food problems have been analysed in relation to demography, imports, distribution, procurement and price policies. The coverage is comprehensive and the discussions also are very lucid and sincerely couched At many places the author has brought to bear on the problems his natural flair for elucidation avoiding jargon and highbrowism

The author has covered areas of public policy that are of great concern for governmental authorities Criticism has not been spared on policies of the fixation of agricultural prices, production and procurement, an area of his special competence The presentation of the various aspects has been done obviously to educate public opinion and the perusal of the book is, therefore, rewarding to those who desire to participate in a national discussion.

B.N. Nair

BOOKS RECEIVED

1 **Mahatma Gandhi** *by Romain Rolland, Publications Division, Govt. of India, New Delhi, Bombay, Calcutta, Madras Price Rs.* 7

2 **A National Penitence - Removal of Untouchability** *by Mahant Mahabir Dass, Publications Division. Govt of India. New Delhi, Bombay, Calcutta, Madras Price Rs* 3

3 **Indian Industries, Development, Management, Finance and Organisation** *by T R Sharma and S D.S. Chauhan. Shiva Lal Agarwala & Company Agra*-3 *Price Rs.* 20

4. **State and National Building** *edited by Rajani Kothari; Allied Publishers Pvt. Ltd, New Delhi. Price Rs.* 55

5 **Managerial Options in India** *edited by Manish Nandy, Calcutta Management, Association and Indian Institute of Management, Calcutta; Allied Publishers (P) Ltd.. Calcutta; Price Rs.* 25

Development Notes

Scientific Instruments' Export Picks Up

Indian scientific instruments industry has made its presence in foreign markets like the Soviet Union, United Kingdom, Indonesia, Burma, Sri Lanka, Afghanistan, Kenya and Kuwait. Goods worth Rs 75 lakh were exported during 1975-76 as against Rs 55 lakh in 1974-75

The industry comprising 500 medium and small units is manufacturing high precision instruments such as microscopes and volumetric glassware. Ambala is the biggest centre of scientific instruments industry in the private sector The industry has an annual turnover of Rs. 4 crore

Besides manufacturing scientific instruments for educational institutions, research laboratories, manufacturing factories and different types of control rooms, the industry manufactures various types of sophisticated precision instruments

While enforcing standardisation the scientific instruments industry keeps pace with the latest developments in modern technology to meet growing demand both at home and abroad The volume of export is increasing annually and some manufacturers have received contract orders from more foreign buyers

HIL's Pesticides Plant

Hindustan Insecticides Limited, a public sector undertaking, has decided to undertake production of a number of sophisticated pesticides, demand for which was so far being met through imports

The plant to manufacture dicofol, with a 25,000 tonne capacity per year, was expected to be commissioned by the end of the current calendar year. The plant has been designed by the HIL engineers and is being put up with 100 per cent indigenous equipment. Manufacturing process for dicofol was developed by the Indian Agricultural Research Institute.

As a result of continuous research, laboratory know-how has been developed at HIL on a number of very important intermediates required for various pesticides Some of the important ones are anisole, naphthol, chloro-N-methyl acatamide and dimethylthiophosphoric acid

Know-how has been developed and perfected on very important organophosphorous pesticide dimethoate which is now under scale up study Besides, a process has been developed for purifying the black sulphuric acid to technical grade sulphuric acid The process is currently under study

Punjab Plan For Leather Development

Punjab has finalised a Rs 43 lakh plan to develop leather industry in the state In spite of its large "cattle wealth" Punjab has to procure from Tamil Nadu and other parts of the country, half-tanned leather worth about Rs. 5 crore every year to satisfy the requirements of its sport goods, footwear and other leather-based industries.

Ironically Punjab gets back in refined form the same hides and skins which are exported in raw form to Tamil Nadu and other states. As there are no adequate arrangements in Punjab for tanning hides and skins, the state industries department has finalised half a dozen schemes in the new Rs 43 lakh plan.

Under the plan, the state proposes to increase the number of flaying centres from 4 to 10 It will also provide Rs. 5 60 lakh for 3 tanning centres to be located at Banga, Malerkotla and Kotkapura, where improved method of "bag tanning" had been introduced on an experimental basis last year

The industries department has also approved a scheme to set up a light leather development centre at Amritsar for which Rs. 6 70 lakh have been sanctioned The centre will specialise in preparing light leather for garments, and other light goods like gloves, etc. This centre is expected to start production in 6 months time.

New Industrial Projects For Assam

Three industrial projects in Assam have been cleared by the Assam Investment Board recently out of the six considered so far. They are: the Jute Mill at Dalgaon, Bus-Body Building Unit under the Assam State Transport Corporation and a River Vessel Building Unit at Gauhati under the Inland Water Transport Department.

The detailed project report of Dalgaon Jute Mill with an annual capacity of 12,500 m.t. and investment of Rs. 716 lakh has already been prepared and the capital goods application has been submitted to the Centre for issue of import licence for the import of plant and machinery.

The Assam State Transport Corporation proposes to set up a bus-body building unit with a capacity of 200 bus bodies per year at a total cost of Rs. 60 lakh At present the Corporation is getting the bus bodies made in Calcutta and Gauhati through private contractors, who take a long time to complete the job The Corporation now plans to fabricate bus-bodies in two rows in the assembly line with premanufactured and fabricated components in advance to help quick assembly.

The Inland Water Transport Department of the Assam Government has 74 river vessels with a total capacity of about 4,200 tonnes All these vessels were built through private contractors at Gauhati in course of the last seven years However, now the department proposes to set up a river vessel construction unit in Gauhati

Ramganga Project Generates Additional Power

Ramganga Irrigation-cum-Power Project in Uttar Pradesh has commenced generating an additional 66,000 Kilowatt of power after the commissioning of its third hydro-generating set, manufactured and supplied by the Bhopal Unit of the Bharat Heavy Electricals Limited With this, the total contribution by BHEL-Bhopal to UP's hydro-power generating capacity has risen to 5,37,000 KW.

The Ramganaga Power Station has three generating sets of 66,000 KW each The earlier two sets also supplied by BHEL-Bhopal, were commissioned in 1975 and 1976

The Power House is situated on a rock-fill dam across the river Ramganga at Kalagarh, about 100 Kms from Moradabad in U.P Besides the generating units, BHEL has supplied, butterfly valves, generator transformer, control panels and other connected auxiliaries as well as the 132/33 KV out door switchyard equipment for this Power House

New Voltage Regulator Developed

An engineer of the Central Coalfields working at Singrauli colliery in Madhya Pradesh, has modified and developed a new voltage regulator entirely with indigenous resources.

A voltage regulator is vital to keeping the battery trim in any vehicle, much more so in heavy earth-moving machines like dumpers and dozers, which cost more than a million rupees each. The need for developing a new regulator arose when due to a defect in imported voltage regulators the dumpers had to be changed frequently adding heavily to the maintenance costs There are 53 dumpers in Singrauli coalfield

The new regulator has 30 machine hours more efficiency per month per dumper and will result in saving Rs. 400 per machine per change

As against the price of Rs. 600, for the imported regulator the indigenous regulator costs only Rs 200

Gujarat Launches Big Fertiliser Project

The 'Bhoomi Pujan' for the Rs 270 crore fertiliser complex being set up at Chavaj, about five km. from Broach in Gujarat has been performed.

The project, one of the five major fertiliser projects expected to be commissioned during the Fifth Plan period, will produce 1,350 tonnes of ammonia and 1,800 tonnes of urea per day.

M/s. Linde of West Germany will collaborate for the ammonia plant and M/s. Snam Progetti of Italy for the urea plant. The Union government has already cleared the import of several items of machinery, equipment and bulk materials.

The unit plans to sell surplus ammonia of about 1 30 lakh tonnes a year to ammonia-based industries after meeting the needs for urea production The surplus aunmonia will help promote several new industries The fertiliser complex will directly employ about 600 but many more would find jobs indirectly.

The plant will need about 1,000 tonnes of fuel oil and 1,600 tonnes of coal per day

Of the estimated cost of Rs. 270 crore, the foreign exchange component will be about Rs. 83 crore The complex was expected to be ready by December, 1979.

Printed at Universal Advertisers E/2, Jhandewalan Extn., New Delhi-110055 and Published by the Director, Publications Division, Patiala House, New Delhi-110001

yojana
ACHARYA KRIPALANI
SPEAKS TO YOJANA
Peoples' Plan

From peak to peak
on an endless
climb ....

YOJANA

Volume XXI Number 10
New Delhi
15 June 1977
25 Jyaistha, 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan, but is not restricted to expressing the official point of view.

Chief Editor
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Editorial Office : Yojana Bhavan, Parliament Street, New Delhi-110001. **Telegraphic Address :** Yojana, New Delhi, **Telephones :** 383655, 387910, 385481, extensions 402 and 420, **Circulation :** Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription ; Annual—Rs. 18, Two years—Rs. 30. Three years—Rs. 42, Foreign Subscriptions : One year—£2.70 or $5.50. Two Years—£4.50 or $9.00. Three Years—£6.30 or $12.50 Single copy—twelve pennies or $0.25.

EDITORIAL

Planning Commission is Reconstituted

YOJANA Bhavan has come alive, again. Occasional holidays and brief periods of siesta have not been quite unknown in the history of our planning. Recently, even the talk of bidding goodbye to planning was heard in certain circles. The doubts and rumours have been at last laid to rest by the Government. It has reconstituted the Planning Commission with Dr D T. Lakdawala, Director of the Department of Economics, Bombay University, as the new Deputy Chairman and Dr Raj Krishna of the Delhi School of Economics as one of the members

In choosing these two distinguished economists, who have been known for their frank criticism of our planning policies, the Government have in no uncertain terms declared their intention to uphold the impartial character of the Commission. This will certainly enhance its stature and credibility especially in its dealing with State Governments By retaining Mr B. Sivaraman as a member and by elevating Mr. V.G Rajadhyaksha, presently Chief Consultant in the Planning Commission to the status of a full member, the Government have taken care to provide the minimum of continuity essential in the change-over

The Prime Minister has always been the Chairman of the Planning Commission and the Finance Minister a member. The presence also of the Defence Minister and the Home Minister in the reconstituted Commission will ensure in full measure the political realism and backing to the deliberations of the Commission and comprehensive coordination of plan formulations

Our Five Year Plans, we should not forget, do not have the sanction of law. The Planning Commission is essentially an advisory body and our planning is at best indicative. It puts before the Government for its consideration rational and carefully worked out choices, financial resources projections and the institutional and social prerequisites of growth, leaving a wide scope for the Government to choose and adapt, keeping in view the aspirations of the people.

Though the Planning Commission will continue to be an advisory body and the Government not essentially bound by all their recommendations, perhaps with the participation of the Prime Minister and the three senior Cabinet Ministers in the deliberations and decision making, it may be possible that in future there will be less chances of the Government facing the embarrassment of not being able to implement the recommendations.

The Planning Commission has undoubtedly done a lot in the past in bringing some amount of national concensus in the aims and objectives of planning However, there is no gainsaying the fact that much remains to be done The defects in the planning exercises and implementation procedures had resulted in wide disparity between the financial resource projections and mobilisation, between employment planning and the actual generation of employment and between the promises and the performance on the whole It cannot be denied that achievements in terms of production in many sectors particularly mass consumption goods, have been disappointing in relation to the vast needs of the country. More serious attention has to be given to the needs of the common man, especially employment and minimum needs.

There is a great need for reinforcing the research resources of the Planning Commission, so as to enable it to arrive at more rational estimates and less fluctuating projections. Side by side with this one cannot but emphasise the need to devise an effective machinery for the implementation of the programmes. □

A Plan for India's Economic Development

SUMMARY

The Finance Minister Shri H.M. Patel has released for public comments a national development plan called the People's Plan II prepared by the Indian Rennaissance Institute, a society founded by the late Shri M.N. Roy. The society had prepared People's Plan I in 1944.

The Readers may find in the Summary of the Plan II below, a totally different orientation with regard to priorities in such areas as employment, agriculture and small industries.

Comments on this Plan will be welcome.

According to the People's Plan-II, planning in India during the coming twenty years or so, should have the following as basic objectives:–

- (i) That the minimum primary consumption requirements of India's growing population should be met,
- (ii) That the productive involvement of the masses in the development of economy should be ensured by generating adequate employment opportunities,
- (iii) That economic growth on which the above two objectives are directly dependent should simultaneously ensure distributive justice, and
- (iv) That the poverty, prevailing among 40 per cent of the Indian population should be eliminated

The above objectives give a plan framework, the fundamental considerations of which are : agricultural output has to be raised rapidly and its tendency to fluctuate severely checked. A thorough going programme of land water management and agro-ecological reform must be the main instrument. Much of the work can be done by labour intensive methods with massive participation of the rural poor Secondly, the pattern of land distribution and land cultivation prevailing must be subjected to a rational reform. Consolidation and viable grouping of such holdings, coupled with stronger implementation of ceiling laws and proper utilisation of community lands represents the major tasks. Thirdly, the drive toward literacy needs to be based on development of area organisations of the rural poor, and leadership development within such organisations Fourthly, there should be a serious attempt to tackle the problem of regularising the channels of trade in essential commodities and their supply to poor households at adequately subsidised prices Fifthly, there is a need to develop a viable small/household industrial sector. Sixthly, attempts should be made to prevent the social waste implicit in the growing number of educated unemployment Programmes both for reducing the production of unemployables and for the organising of socio-developmental activities in which educated unemployed can validly participate are essential. Seventhly, while adequate emphasis has been placed on population control and on effective methods for spreading family limitation practices, particularly among the weaker section of the society

In this context the investment priorities of the People's Plan II are as follows .-

- (i) Since India's development performance both in terms of per capita product and the growth rate of employment will depend predominantly on what happens in the agricultural sector, the pattern of investment allocation in the People's Plan should be governed above everything else, by the need for providing an adequate 'input-infrastructure - institutional' base for a sufficiently rapid rise in (a) the incomes of the agricultural sector, and (b) rural employment opportunities. The People's Plan aims at a comprehensive reconstruction of the rural economy through the development of agriculture, agro-based industries and cottage/household industries. Building up of necessary infrastructural facilities (both physical and social) also is of equal importance.
- (ii) Since the supplies of primary consumption goods have been lagging behind their effective demand during the past two decades, economic growth has not generated the required improvements in the standard of living of the masses. Therefore, sectors engaged in producing goods of primary needs (agricultural as well as non-agricultural) should receive priority attention in the matter of investment allocations
- (iii) Since improvements in the general welfare significantly depend on services like health education and other community development services including those to the underprivileged and the rural masses, outlays on these services/sectors, should be stepped up substantially Apart from satisfying the known socio-political requirements, this order of investment priorities would directly enhance employment potentials because of the low capital output ratio in this sector.

The tasks identified above have a natural and integral relationship with the kind of growth needed for poverty elimination First, there must be a rapid growth and techno-organisational progress in the sectors on which the poor depend for employment: agriculture, animal husbandry, forestry, construction and public works, village crafts and small industry, small services units and minor transport. All other sectors must be treated for the time being as important only to the extent they provide necessary inputs and support services to these new priority sectors. Secondly, there must be a rapid expansion in the

TABLE 1

Resource Generation Assumptions during 1978-79 to 1998-99

	1978-79	1983-84	1988-89	1993-94	1998-99
1. Ratio of Disposable Income to GDP	114.12	114.12	114.12	114.12	114.12
2. Share of State Sector in DI*	16.64	18.30	20.13	22.14	24.35
3. Share of Private Sector in DI*	82.93	81.27	79.44	77.43	75.22
4. Share of External Sector in DI*	0.4	0.43	0.43	0.43	0.43
5 Propensity to Save in State Secto	27.63	30.39	33.43	36.77	40.45
6. Propensity to Save in Private Sector	13.53	14.21	14.92	15.67	16.45
7. Ratio of Net Imports to DI*	1.04	0.83	0.66	0.53	0.42
8. Implied Share of Investible Resources to GDP	19.24	20.96	22.45	24.23	26.41

*Disposal Income.
Source : Fifth Five Year Plan—p. 110 for 1978-79 figures.

output of basic wage-goods industries, simultaneously followed by a deliberate attempt to curb the growth of non-essential consumption goods industries. Capital goods and intermediates goods sectors should be allowed to grow only to the minimum unavoidable extent on the basis of consolidation of inter-sectoral balances. Thirdly there must be a rapid extension of social service activities—family planning, child care, education, community organisation and health directed especially at poor communities. Fourthly, there should be an intensive attempt to improve the availability of drinking water, sanitation and housing levels of poor communities and slum areas While, in the immediate future, resources and sectoral priorities may not permit rapid progress towards permanent solution of housing and community services problem, interim measure of a semi-permanent low-outlay type-will have to be intensively pursued.

A growth strategy with the priorities outlined above and coupled with intensive attention to the tasks of planning mentioned earlier will serve not only for a vigorous action on the poverty problem but also will serve to accelerate growth. This belief is based on three fundamental factors. First, the new seotoral priorities will serve to weigh in favour of new investments towards high incremental output-capital ratio sectors and short-gestation projects. This will not be done indiscriminately, but will follow naturally from the sectoral priorities adopted. Secondly, by allowing for rapid expansion of basic wage goods output (industrial as well as agricultural) the new strategy will break the imbalance which has been responsible for continued stagnation along with inflation in the Indian economy. Thirdly, by rationally restricting fresh outlays on capital goods and heavy infrastructure, the new development style will release resources for more meaningful growth promoting activities, particularly those using social services as their main activating input.

A Twenty-year Developmental Perspective

Within the framework outlined above, the Peoples Plan tries to arrive at (a) a developmental perspective for the coming 20 years starting from 1978-79 and (b) a ten-year indicative plan for the period 1978-79—1988-89.

The resource generation assumptions made by the Peoples Plan are summarised in Table 1.

With investible resources amounting to 19 24 per cent of GDP in 1978-79, the Fifth Five Year Plan proposes a growth rate of 5.65 per cent. This involves an implicit incremental capital output ratio of 3.41:1. With a different pattern of sectoral emphasis and bias towards low-investment-cost technologies, it should be possible to hold the incremental capital output ratio down to 3.21:1 for the first 5-year period. This will allow a growth rate of 6.0% per annum. For the next three quinquenniums, capital-output ratio may be allowed to rise successively to 3.41:1, 3.6:1, and 3 8:1 respectively, the rise reflecting the gradual shift towards emphasis on higer capital-intensity sectors and more capital-intensive technical options. The growth rates of GDP for the 4 quinquenniums are thus 6 0%, 6.16%, 6 24% and 6.38% annually. This represents a slow but steady acceleration of the pace of growth as the resource-generation position improves. The results of the process are summarised in Tables 2 and 3. They indicate that the economy will grow more State-sector-oriented, that domestic savings will grow rapidly and the economy become relatively (though not absolutely) less dependent on net imports financed by foreign capital inflow. This type of action will allow the mobilisation of resources without resorting to inflationary measures

TABLE 2

Growth and Resource Generation During 1978-79—1998-99. (Figures in 1975-76 Prices : Rs. Millions)

	1978-79	1983-84	1988-89	1993-94	1998-99
1 GDP	770650	1031300	1390560	1882040	2564060
2. Disposable Income	879440	1176920	1586910	2147790	2926110
3 Public Sector Income	146380	215380	319440	475520	709000
4 Private Sector Income	729260	956490	1260640	1663030	2201020
5. External Sector Income	3800	5050	6830	9240	16090
6. Public Savings	40450	65450	106790	174850	286790
7 Private Savings	98680	135920	188090	260600	362070
8 Net Imports	5320	9770	10470	11380	12290
9 Investible Resources	148250	216190	312180	456070	677240

Source : Base-line data, Fifth Five Year Plan, p.110.

TABLE 3

Growth, Consumption and Savings During 1978-79—1998-99. (Figures in 1975-76 prices: Rs. Millions)

	1978-79	1983-84	1988-89	1993-94	1998-99
1. GDP	770650	1031300	1390560	1882040	2564060
2. Disposable Income	879440	1176920	1586910	2147790	2926110
3. Consumption	736510	940500	1285200	1703100	2261160
4. Domestic Savings	142930	206420	301710	444690	664950
5. Investment	148250	216190	312180	456070	677240

Source · Base-line data, Fifth Five Year Plan, p. 110

Population

For purposes of Peoples Plan, population in 1978–79 is estimated at 634 millions Taking 1983–84 as the date at which birth and death rates will be compatible with long run population stability, the Plan has derived the target figures as summarised in Table 4.

Primary Needs Target : Food and Clothing

Given the figures for disposable income and population the primary needs fulfillment levels of supplies of some leading consumption items are estimated in Table 5 below. The per head physical consumption norms are those suggested in the report of the National Commission on Agriculture (Part III) The income elasticity relationships used are from F.A. Mehta, (The second India series—Economy)

Primary Needs : Health

The basic needs targets for health services are estimated as follows Health Department's population-based norms are used to estimate personnel requirements For quantum of medical expenses needed to cover the bottom 40 per cent of the population, the World Health Organisation norm of Rs. 15 per capita/year is adopted It is also assumed that this will be roughly 30 per cent of Total health services expenditure private and public

TABLE 4

Population Trend and Population Targets During 1976-2001 (Figures in Millions)

	Population as per present trend (by Medium 1 Estimate	Population Target Levels	Policy Gap
1976	605 6	605.6	(actual
1978–79	634.0	634 0	(actual
1981	663 3	656 0	7.
1983–84	693 2	684 5	8.
1986	724.5	708.0	16
1988–89	754.7	733 5	20.
1991	786.2	760 0	26.
1993–94	819 3	784.9	34.
1996	853 8	810.6	43.2
1998–99	888 4	834 6	53

Source: For Trend Figures, Registrar General of Census, Govt of India Population Projection 1971 to 2001 A.D

TABLE 5

Primary Needs and Consumption Targets

	Unit	Need 98-99	Actual 78-79	Increase (%
1. Foodgrains	Million Tonnes	167.00	125 00	33.60
2. Sugar	,,	10.50	5.40	94.44
3. Gur	,,	13 53	8.22	64.60
4. Vanaspati	,,	1.72	0 61	181.97
5 Tea	Million kgs	498	235	111.91
6. Coffee	,,	103	52	98 08
7. Tobacco	,,	474	283	67.49
8. Cotton Clothing	Million metres	22530	9500	137.16

Gur actual 1978–79, obtained on the basis of residual sugarcane converted to Gur. Source : (i) Fifth Five Year Plan; (2) Coffee Board, Five Year Plan; (3) Gur and Tobacco estimated on the basis of trend method.

TABLE 6

Health : Primary Need Targets

	Unit	1978-79 Actual	1998-99 Target	Increase (%)	Norm
1. Doctors	nos.	167,800	238,460	42.11	1:3500 persons
2. Nurses	nos.	103,200	166,920	61.74	1:5000 ,,
3. Auxillary Nurses and Midwives	nos.	83,200	166,920	100.34	1:5000 ,,
4. Sanitary workers	nos.	39,230	83,460	185.53	1:10000 ,,
5. Expenditure on Anti-Poverty Health Service million Rs.		n.a.	5007.60	n.a.	Rs. 15/- per capita
6. Total Health Service expenditure	Rs. million	1883.81	16692.00	786.08	not applicable

Source: Fifth Five Year Plan, Health and Educational Programmes:Annual Report of the Ministry of Health and Family Planning (1974–75). The 1978–79 actuals have been estimated on the basis of planned additions to health personnel added to 1973–74 figures.

Primary Needs : Education

An essentially similar procedure is followed for estimating basic needs in education. Population-based norms of the Education Department are used to estimate numbers of primary schools/adult education centres and secondary schools A norm of Rs. 18/- per capita per year is adopted as minimum educational expenditure needs per year is adpoted as minimum educational expenditure needs for members of bottom 40 per cent of the population. The outlay on poor people's education is set at 40 per cent of total educational outlays

Primary Needs : Housing

The basic target in the housing sector is to provide the bottom 40 per cent of the population with minimum habitation standards by 1998–99 This standard involves 1 housing unit of minimum satisfactory condition per standard household of 5. This gives a target of 41.73 million housing units by 1998–99 This is the stock target

At present there are around 37 85 million housing units occupied by the bottom 40 per cent of the population. Around 80 per cent of this housing is critically substandard. Thus fully meeting the bottom 40 per cent of the population's housing minimum needs will involve by 1998–99, the following expenditure

Primary Needs : Phasing

Evidently proper 'phasing' will be necessary in meeting primary needs targets by 1998-99. As far as consumption goods are concerned, the Plan adopts the targets of attaining upto 1988–89, growth rates which (if projected to 1998–99) will reach the table 5 figures. It is also clear that the three targets concerning education (qualitative target), health and housing programme are difficult of simultaneous attainment. Therefore, it is felt that (as far as the first two targets are concerned) the first decade should achieve one-third of the needed increase and the second decade two- thirds of the needed increase. As far as the housing programme is concerned the 4 quinquenniums should involve expenditure of 0 1, 0.2, 0.3 and 0 4 per cent of the total estimated expenditure. Thus, our primary needs perspective is (a) meeting of lower estimate consumption needs by 1988–89 and fully meeting basic consumption goods supply target by 1998–99, (b) coverage and personnel norms of educational and health services fully by 1988–89 and qualitative expenditure targets by 1998–99 and (c) coverage of 3/10 of the minimum housing programme by 1988–89 and of the rest 7/10 by 1998–99 This seems to be, prima facie, the best that can be achieved by 1998–99

Sectoral Growth Patterns

By 1998–99, the per capita income will rise from its 1978–79 level of Rs 1387.10 to nearly Rs. 3506.00 This rise of 152 76 per cent in per capita income will, of itself generate a number of alterations in the sectoral composition of output. On the basis of a balanced structural pattern, the following would be the over-all structural change between 1978–79 and 1998–99.

TABLE 7

Education : Basic Needs Targets

		Actual 78-79	Need 98-99	Increase (%)	Norm
1.	Primary schools (nos.)	487980	834,600	67.60	1:1000 persons
2.	Secondary Schools (nos)	102930	166,920	62.17	1:5000 "
3.	Educational Expenses of Bottom 40 per cent of Population (Rs. millions)	n.a.	7210.94	n.a.	Rs. 18/- per capita
4.	Total Expenditure on Education (Rs. millions)	3078 04	18027.35	485.68	Not applicable

Source : Ministry of Education, Education Year Book 1976. p.12.

TABLE 8

Housing Minimum Needs Programme 1978-79 to 1998-99 (Rs. Millions)

1	Renovation of and upkeep of 30 28 million units @Rs. 1000/- per unit	30280
2	Upkeep of 7.57 million units for 20 years Rs @20/- a year per unit .	3028
3	New construction of 3 88 million units Rs @5000/- per unit .	19400
	Total ·	52708
4	Assuming Poor People's Housing to be 40 per cent of Total Outlay on Housing, said Total Outlay ..	131770
	or, an yearly average of .	6558.50
5	Total Investments on Housing 1978–79	1406 93
6	Gap in Investments in 1978–79	5181.57

Source Ardeshir Dalal Housing and the Poor, Manek Publications, Bombay, 1975 for "Conditions in 1978–79". HUDCO estimates of minimum upkeep, renovation and new construction for housing Figures roughly average of EWS and rural housing scheme figures Converted pro-rate to 1975–76 base. HUDCO, Low Cost Housing Programmes, 1973.

TABLE 9

Structural Change in the Indian Economy between 1978-79 and 1998-99
Sectoral Outputs as Percentages Share in GDP

		1978-79	1988-89	1998-99
1	Agriculture	48.15	42 00	28.50
2	Industry	17 49	19 00	21.20
3.	Electricity etc	0.94	1 00	2.00
4	Construction	4 21	6 23	9.20
5.	Transport	3 48	3 80	5.80
6.	Services	25.73	27 97	32.30

Source: For 1978–79, Fifth Five Year Plan, p 17.

Plan Perspective : A Comparison

As compared to the existing perspective (table 10) (see next page) the People's Plan perspective has a greater emphasis on (a) construction, (b) transport and (c) agriculture and relatively lower emphasis on (a) electricity, etc. (b) manufactures and (c) services Thus, the relative high growth areas of the Peoples Plan are (a) social services, (b) agriculture, (c) small industry and (d) housing and; the relative low growth areas are (a) administration, trade and commerce, (b) large-scale industry. The much greater emphasise on rural public works, construction and transport are already evident Due to this changed emphasis, the People's Plan perspective expects relatively a better performance in terms of aggregate growth The performance is relatively impressive in terms of per capita income, since its rate of targetted population growth, 15 67 per cent, is much lower than the officially planned rate of growth which is 19 03 per cent, over 1978–79 to 1988–89 Thus, in the existing planning per capita income rises by 47 98 per cent while in People's Plan it increases by 55 98 per cent.

TABLE 10

A Comparison of Peoples Plan Perspective with Fifth Plan Perspective

Sector	Officially Planned Increase (%)	People's Plan Projected Increase (%)
1. Agriculture	48.16	57.40
2 Manufactures	104 00	96.05
3. Electricity etc	132.02	91.98
4 Construction	109.84	167.04
5. Transport	76 71	97.94
6. Services	101.05	96.09
7. GDP	76 14	80.43

The Employment Perspective

The new job demand in the non-agricultural sectors has been estimated by dividing the output increments by the Central Statistical Organisation (CSO), figures for jobs per Rs 1 million of new output. An over all reduction of 20 per cent has also been applied in order to take account of productivity increase between 1978–79 and 1998–99 Thus, the estimates yielded a figure of 165 32 million new jobs that would be created over the next 20 years in the non-agricultural sector. On the basis of the population projections presented in Table 4 and on the basis of the specific assumptions of a 95 per cent male participation and 45 per cent female participation rate in 1998–99, the potential work force is expected to rise from 199 21 million in 1978–79 to 288 29 million in 1998–99, a rise of 89 09 million Beyond this, a backlog of about 14 million of open unemployed existing in 1978-79 is to be covered' so that by 1998–99 a total of 103.08 new jobs are required in the non-agricultural sectors, merely to keep the situation as it is The net excess of jobs created over jobs required turns to be 62 24 millions. By 1998–99, the agricultural work force will be 91 11 million, as against 153.35 million in 1978–79. At the same time, output in the agricultural sector will rise from Rs. 371068 million to Rs. 730757 million involving an increase in per worker product in agriculture from Rs. 2419 75 per year to Rs. 8020 60 per year. It is expected that this change will more than suffice to eliminate unemployment and underemployment in the agricultural sector

A Ten Year Plan For People's Prosperity

Assuming the aggregate growth perspective to be attainable and considering the upper limit of aggregate public outlay thus being established, an attempt has been made to formulate an indicative 10 year plan for the period 1978–79 – 1988-89 In doing so, the sector-wise amounts of total investments are first divided on the basis of mobilisable resources within each sector and second, resources to be transferred to that sector Adding such transfer needs together for the economy as a whole (excluding the administration sector), the amount of resources which needs to be mobilised to make possible the planned programme of sectoral investments, are arrived at. The total public investment consists of these amounts and the finance raised by the Government enterprises in each sector The total public outlays are calculated by adding the necessary amounts of public non-developmental outlays in each sector. The total public outlays are then divided among 'programme sectors' of the Plan. These sectors are different from investment sectors and include both consumption and investment components.

The impact of the Ten Year Plan is, thus, developed along the following dimensions: (a) the sectoral growth pattern is worked out in greater detail and growth targets of a number of critical subsectors are indicated; (b) employment generation figures for all major sectors are, thus, computed based on sectoral increments. The excess of the labour force increment over employment generation (in non- agricultural sector) is treated as the net increase of work force in the agricultural sector, (c) the employment pattern is then treated with the output pattern (both for beginning and end-plan years) and the rise in per worker productivity in agriculture is treated as a 'proxy variable' for reduction in agricultural under-employment (d) the per capita income growth increase and its relationship with sectoral per worker productivity pattern is examined and (e) finally the Plan's implication on the poverty situation is derived.

Resource Generation Potentials

Table 11 (see next page) indicates the estimated resources to be raised by the Government.

Public Investments

The logic underlying the plan investment pattern (Table 12) is explained below·

1 Agriculture is an activity best developed under private initiative However, it will require massive investment support Similar is the situation for small industry. Thus, these two sectors show relatively high ratios of private and government (transfer) investments.
2 Large industry is a sector where both private and public sector investments should evenly collaborate However, since the Plan does not propose too-fast an increment of this sector, the degree of 'transfer' is low
3 Electricity is a sector in which there is little private investment possibility. Self-generated government investments are also likely to be insufficient. This calls for a high rate of transfer.

4.	The construction and services (less administration) sectors display fairly equal participation by private and public investment. But, due to high planned rates of growth in both sectors considerable transfer is required.

TABLE 11

Resource Mobilisation Limits During Ten Year Plan Period (1978-79—1988-89) (minimum estimates)

1.	Gross Domestic Product (Plan Annual Average)	: Rs 1035198 millions.
2.	Gross National Product (Plan Annual Average)	: Rs. 1181368 millions.
3	Ratio of Direct Taxes to GNP in 1978-79	: 3.42 per cent.
4.	Direct Taxes (Plan Annual Average)	: Rs. 40402 79 millions.
5.	TOTAL DIRECT TAXES	: Rs. 404028 millions.
6	Ratio of Indirect Taxes to GNP in 1978-79	: 13. 32 per cent.
7.	Indirect Taxes (Plan Annual Average)	: Rs. 157358 21 millions.
8.	TOTAL INDIRECT TAXES	: Rs. 1573582.10 millions
9.	TOTAL TAX REVENUES (5+8)	· Rs. 1977610 millions.
10.	Savings by State Enterprises as a ratio to GNP 1978-79	: Rs 4 26 per cent.
11	Planned rise during People's Plan	. Rs. 20 per cent.
12.	Rate of State Enterprise Savings	. Rs. 5.11 per cent.
13.	Government Enterprise Savings (Plan Annual Average)	. Rs. 60391.53 millions
14.	ESTIMATED TOTAL SURPLUS OF GOVERNMENT ENTERPRISES	Rs 603915.32 millions
15	Foreign capital inflows (Plan Annual Average)	. Rs. 12547 11 millions
16.	ESTIMATED TOTAL FOREIGN CAPITAL INFLOWS	. Rs 125471.10 millions
17.	TOTAL MOBILISABLE RESOURCES WITHOUT DOMESTIC BORROWINGS (5)+(8)+(14)+(16)	: Rs. 2163472.4 millions
18.	Net borrowings, maximum	: Rs. 30 per cent of (17) above
19	MAXIMUM PUBLIC OUTLAYS WITHOUT DEFICIT FINANCE	· Rs 2812514 millions.

Note : The above 'minimum estimates' have been generated by assuming (1) that rates of direct and indirect taxes *will not rise* above the rates they are planned to reach (according to official plans) by 1978-79; (2) that the proportion of surpluses of public enterprises to Gross National Product will rise to 20 per cent above its level in 1978-79; (3) that foreign capital inflows will be as shown in the macroeconomic balance (Chapter Four: Table 4.2) and (4) that domestic borrowings will be limited to not more than 30 per cent of the total resources raised by the first three methods. These assumptions guarantee that the resource-raising by the visualised can actually take place These are, thus, the minimum estimated of the maximum resources that may be raised by the government, without resorting to deficit financing

Considering the process of investment-financing, it is estimated that out of a total investment outlay of Rs. 1944724 million (less administrative investments), the private sector's contribution will be of Rs.853824 millions while the public sector raises Rs. 1090900 millions of which Rs. 367830 million is financed from enterprise surpluses; Rs. 597599 millions out of budgetary surpluses and; Rs. 125471 millions out of external funds Comparing this figure of Rs. 1090900 millions of investment outlays with the figure of Rs. 1735686 millions of total permissible public outlays of both investment and non-investment types, total non-investment outlays comes to about Rs 644786 millions In order that external dependence may be reduced, this outlay is cut down to Rs. 540000 millions. This allows Rs. 827980 millions to be financed out of budgetary surpluses and reduces the degree of external financing of total investment outlays. There is, thus, a total plan outlay of Rs. 1630900 millions of which Rs. 1090900 is investment and Rs. 540000 millions is non-investment development outlay

The programmewise allocations of the total outlays are presented in Table 13 (see next page). By comparing these allocations with the Fifth Plan allocations it can be seen that the People's Plan II lays greater emphasis on (a) agriculture, (b) irrigation and flood control, (c) housing, community facilities, etc. (d) education and (e) health, nutrition and family planning Sharp reduction occurs in (f) industry (large), (g) transport/communications and (h) power and energy. Some of the apparent reduction is, however, a result of non-conformity in sector definitions In table 5.4 these comparative data are presented with appropriate changes in order to secure full comparability. It is clear from Table 14 that the share of agriculture in plan allocations is raised from 11.82 to 15.28 per cent, the share of irrigation and flood control from 8.76 to 13 26 per cent; of education from 3.27 to 7 47 per cent; and of social and community services from 12 13 to 23.88 per cent As against this, the share of industry is reduced sharply from 25.96 to 15.20 per cent and of power and energy from 18.56 to 10.26 per cent. The share of transport and communication all drops, but less sharply, from 17 51 to 14.21 per cent In other words, from an industry-power-transport-oriented plan 390 the xis-

TABLE 12

Investments and Transfers during Ten Year Plan period (in Rs. millions at 1975-76 prices)

Sectors	Output Increments	Capital[b] Output Ratios	Necessary Investments	Private[d] Investments	Govt. Investments	Self Financed[e] Investments	Transfers (Govt. only)
Agriculture	213005	3 22	685764	274306	411458	329	411129
Small Industry	29336	3 25	95583	33454	62129	311	61818
Large Industry	100049[a]	5 08	509020	274870	234150	187320	46830
Electricity	6663[c]	4 21	28051	51	28000	7000	21000
Transport	26026	4 21	83543	44790	38753	27127	11626
Construction	54193	4 60	249288	108963	140325	49114	91211
Services	152046	1 93	293475	117390	176085	96629	179456
SUB TOTAL	58;388	3 34	1944724	853824	1090900	367830	723070
Administration	38522	3 27	125775	0	125775	(723374)[g]	(-597599)
						(827980)[h]	(-702205)
External Sector[f]	—	—	—	—	—	—	(-125471)
							(-125471)
ECONOMIC BALANCE	619910	3 34	2070944	853824	1216675	—	(-20685)

Note: .a) Include 'mining' (b) CSO estimates except for 'administration' and 'small industry' which are derived as 'residuals' (c) Power generation only. (d) Private investments, (e) Self-financed investments, (f) External funds inflow. (g) Allocations before considering public outlays other than investment. (h) Allocations after considering other outlays

ting type, the emphasis has shifted to an agriculture-education-social services-oriented plan The People's Plan lays stress on housing, community facilities on the one hand and on health-nutrition-family planning on the other.

Growth and Employment Generation

The above mentioned shifts in the investment pattern are primarily intended to generate a greater volume of employment per unit of additional income generated In particular the aim is to generate a much faster increase in employment opportunities for *unskilled* labour (both urban and rural) so that employment generation may have the easing impact on the poverty situation.

The quantum of new jobs created (according to the People's Plan pattern) is 46 943 millions over the decade in the non-agricultural sectors. Applying parallel methods of anlysis to the Fifth Plan growth perspective, new job generation in non-agricultural sectors drops to 43 357 millions In the same period, the labour force (calculated on population basis) rises from 199 21 millions to 244 81 millions, registering a rise of 45 60 millions Thus, while the People's Plan allows for a net absorption of 1 34 millions into the non-agricultural sector, relieving the under employment pressure in agriculture the Fifth Plan variant leads to net surplus of job-seekers over jobs in the non-agricultural sector of 2 24 millions, who must be absorbed into agriculture, thus increasing the pressure of under-employment and unemployment.

As far as unskilled labour is concerned, the growth pattern of the People's Plan helps in three ways First, the increment of unskilled labour in the People's Plan is smaller (3 13 million) due to the expanded skill building and educational programmes. Secondly, the direct generation of unskilled labour demand through People's Plan (40 787 millions) is 3 039 millions higher than that of the Fifth Plan perspective (37 738 millions). Finally, the People's Plan includes (over and above natural employment increments to be expected through growth), much larger programmes of direct supplementary employment creation. It can also be seen that while in the Fifth Plan perspective 120 7 millions of new dependents will have to be supported by 44.46 millions of new jobs, in the People's Plan 99 5 millions of new dependents will have to be supported by 52 05 millions of new jobs. The

TABLE 13

Programmewise Allocations of Outlays during the Period 1978-79—1988-89 (Rs. Millions at 1975-76 Prices)

Sectors	Investment	Non-Investment	Total	Per cent Share
Agriculture and Allied Sectors	220202	29050	24962	15 28
Irrigation and Flood Control	191256	24940	216196	13 26
Power and Energy	100800[a]	26500	134500	18 26
Industry and Mining	216279	31690	147969	15 20
Small Industry	62129	8100	70229	4 31
Large Industry	154150	23590	177740	10 89
Transport/Communication	78753b	22547	101300	6 21
Housing/Community Facility etc.	120325c	136595	256920	15 75
Education	46085	75900	121985	7 47
Health/Nutrition/Family Planning etc	10200	180768	282786	17 33
Rest of Plan	8000	12000	20000	1 23
Total	1090900	540000	1630900	100 00

(a) Does not include distribution costs. Includes "energy sector" investment in large industry (coal, petroleum etc.)
(b) Includes Rs. 40000 million investment on communication, does not include intra-urban transport.
(c) Includes power distribution and intra-urban transport.

TABLE 14
Comparison of Peopl's Plan and Fifth Plan Programme Outlay Ratios

Sector	Per cent Allocations	
	People's Plan[1]	Official Fifth Plan
Agriculture and Allied Sectors	15.28	11.82
Irrigation and Flood Control	13.26	8.76
Power (with distribution cost added)	10.26	18 56
Industry and Mining	15.20	25.96
Transport/Communication (Intra-urban transport added)	14.21	17.51
Education	7.47	3.27
Social and Community Services	23.08	12 13
Rest of the Plan	1.23	1.99
	100.00	100.00

ırce · Fifth Five Year Plan, p 52 [1] As per Official Sector Definitions.

endents incremental ratio improves, s, from 2 67: 1 to about 1 81 1

›wth and People's Prosperity

n aggregative terms, the People's n expects to achieve a rise in ›ss Domestic Product by 80.04 cent over ten years As popula- ı rises during the same period by ›ut 15.85 per cent, a rise in capita GDP of 55.41 per cent anticipated This will take per ıta income from Rs 1387.13 Rs. 2198 86 in 1975-76 prices the mean time, the per capita ›me of the bottom 40 per cent he population is expected to rise n Rs 520 to Rs. 963, a rise of ut 100.62 per cent. This higher : of increase in the case of bottom per cent is attained mainly ›ugh, (a) the impact of the plan the demand for unskilled labour, the massive outlays on services :ifically included to benefit the ker sections like education, health housing, (c) the direct and in- ct contribution from the primary sumptions fulfillment programme (d) the over all bias of the Plan avour of the bottom 40 per cent. :ulating like-wise for the Fifth ı variant fields a per capita in- ıe for the poor group of only 785 45. Thus, there is a gain in the People's Plan of over Rs 164 per head in the final average annual income of the bottom 40 per cent of the population.

Within the above specified over all structure of the 10-year Plan, there has to be significant variations in the pattern of allocations over time. The reason behind this is that (in any process of shift from one strategy of growth to another) there must be an intervening 'transition phase' in which the imbalances of the previous strategy are corrected. Only after this phase, can growth along the new strategy begin in earnest. The Peoples Plan II, therefore, visualises a 3-year 'transition phase plan' covering the first three years (1978-79—1980-81) of the ten year plan outlined above.

The investment and growth pattern envisaged during the transition plan is presented in Table 15 below.

Thus, while out of a total increment in gross domestic product of Rs. 619910 million over the 10-year period, about 27 09 per cent is accounted for in the transitions phase about 24.92 per cent of investments being accounted for during the same period.

The investment allocation for the three year plan (1978-79—1980-81) have thus been attempted with a view to ensure a smooth transition from a heavy industry-capital goods oriented Fifth Five Year Plan to an agriculture-services-oriented Peoples Plan, envisaged in the 10 year development plan. The broad allocations indicated in the Table 5 adhere to new scheme of priorities evolved. for the 10 year development

The significant features of the Peoples Plan II (in comparison to the Fifth Five Year Plan) are:

Firstly, the economy becomes relatively less rapidly industrialised while modernising faster in terms of social services, public utilities, housing standards and agrarian economic conditions. Secondly, industrialisation is relatively more small-industry-oriented and consequently more capable of dispersal and positive interaction with the rural environment Thirdly, there are small but distinct gains in terms of slower population growth, faster economic growth and a faster rise of per capital incomes. Fourthly, the State sector becomes increasingly involved with provision of services and public utilities and has relatively less to do with industrial growth. Fifthly, transport and construction receive greater emphasis, while the emphasis on power generation is reduced. Sixthly, the process of growth becomes somewhat more consumption-oriented and somewhat less capital accumulation oriented. The major gains in consumption are, however, in terms of basic necessities and social welfare services. Finally, because of the labour intensive nature of the growth process, generation of more employment opportunities is rendered possible, when compared to the official variant Each of these features testify to a better balance between growth and social justice requirements in the People's Plan perspective. In conclusion the strategy and approach suggested by Peoples Plan II will generate and sustain that kind of economic development which will help in raising the real standard of living of the more of Indian people ☐

TABLE 15
Growth in the Transitional Phase (in Rs. Millions)

·ctor	Output 1978-79	Output 1981-82	Increment	Investment
;riculture and Allied Sectors	371068	434970	63902	205629
dustry and Mining	134769	160646	25877	120900
ectricity etc.	7244	8577	1333	5610
ansport	26819	32014	5205	16709
›using/Construction	32444	43282	10839	49858
·rvices	198306	259124	60818	117390
›tal	770650	936614	167964	516096

New Thinking on Planning

V. K. NARASIMHAN

THERE CAN BE no two opinions that, after a quarter century of planning, there is compelling need for fresh thinking and evolving of new approaches and strategies if the war against mass poverty in India is to be won before the end of the century. The advent of the new Janata Government, pledged to the pursuit of a Gandhian programme, is perhaps an appropriate occasion for such an exercise. The Prime Minister, Mr. Morarji Desai, disclosed the other day at a press conference that the Government was engaged in efforts to give a new orientation to the country's economic policies. Almost simultaneously the Finance Minister, Mr. H.M. Patel, released for public discussion an elaborate "People's Plan the Second" prepared by the Indian Renaissance Institute, which was set up by the late, Mr. M.N. Roy over 30 years ago.

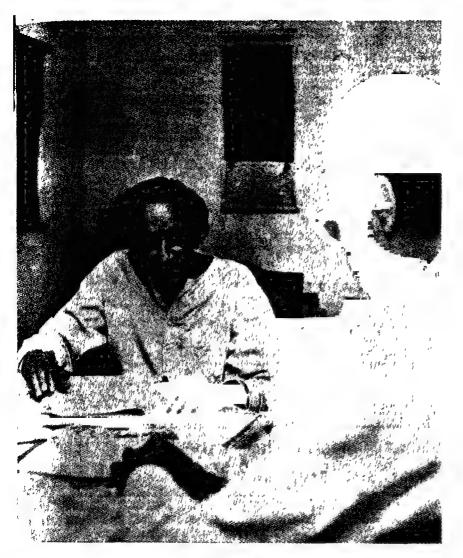
Admittedly, the Renaissance Institute's plan does not represent official thinking. It offers an alternative approach to planning based upon the experience and the failures of the five Five Year Plans that have been implemented since 1950–51. The Second People's Plan recognises the achievements of the Five Year Plans in diversifying the economy and in creating an infrastructure for development by providing several essential requisites like power, transport, technical education and the like. Enormous investment has gone into the establishment of a wide range of industries, largely in the public sector, and in the development of irrigation and hydro-electric resources. Where the plans have failed is in failing to meet the basic needs of the mass of the population, in generating adequate employment for the growing population and in narrowing the disparities in the incomes of the population. That these failures are directly related to the pattern of investment undertaken in the plans as well as to gross lapses in implementation of plan projects is clear beyond doubt. There has been too much stress on capital intensive and heavy industries and too little attention to increased production of goods of mass consumption. There has been very little cost consciousness in operating public sector projects. The output-capital ratio has been steadily declining from one plan to another, which means that more and more capital is invested to produce proportionately less and less goods. An index of the rake's progeess in this sphere is provided by the official figures which show that the output-capital ratio, which worked out to 47 per cent in First Plan period, has declined to as low as 19 per cent in the Fourth Plan. This means that an investment of Rs. 100, which resulted in an output of Rs. 47 during 1951–56, yielded in 1969-74 an output of only Rs. 19. No wonder that inflation has become endemic and the rate of growth of economy in real terms is miserably low.

The Renaissance Institute's plan seeks to remedy this situation by changes in the pattern of investment as well as in the methods of implementing the plan. It envisages a 20-year intensive plan indicating the sectoral pattern of outlays and the sources for the mobilisation of resources. The emphasis in plan outlays is shifted from heavy industries and large-scale manufacturing to agriculture, small-scale industries and social services for the benefit of the rural population. The avowed objective of this shift is to raise productivity in agriculture, increase rural employment and improve the incomes of the most depressed sections of the rural population—the marginal farmers and the landless labourers.

It is not necessary here to go into the elaborate statistical exercises that have been carried out by the economists of the Renaissance Institute in support of their plan. Only a detailed study of the figures and the assumptions on which they are based can reveal how realistic and practicable the estimates are. Moreover in all planning, as past experience has shown, resources mobilisation is only a small part of the planning process. Much more important is the way the money is spent and the continual effort to operate projects on an efficient and remunerative basis. If our earlier plans have proved unrewarding, it is because in many cases heavily capitalised projects like steel plants or engineering units were operated far below capacity. It will be even more difficult to achieve high levels of productivity in agriculture, especially when we have to deal with millions of small farmers operating under various handicaps, besides the vagaries of the monsoon.

What appears to be the weakest aspect of the Renaissance Institute's plan is that it does not correct what has been the basic weakness of all the earlier plans, namely, the failure to plan from below. The Institute's emphasis on basic needs of the population takes too narrow a view of the rural population's requirements. Surely there are other consumption goods which are as important as the eight items which figure in its plan targets: foodgrains, sugar, gur, vanaspati, tea, coffee, tobacco cotton cloth. Other items which ought to be included are: vegetables, edible oils, milk, kerosene and non-cereals like pulses. The plan targets for basic commodities should include these items and some more like paper, which is closely linked to expansion of education.

The most important task facing the Government in evolving a new plan strategy is to relate the resources available at the rural level to the needs of the rural population, not as determined by planners in Delhi, but by the local population themselves. The drawing up of plans from the district level will mark a revolutionary change in our approach to planning and will make popular participation in the planning process meaningful and fruitful. Macroplanning on a national scale is unavoidable, but it is microplanning at the district and village level that will produce worthwhile results and improve the living conditions of the masses. Only then will Indian planning receive the Gandhian orientation which is desired. □

Shri Narasimhan is a journalist

KRIPALANI SPEAKS TO YOJANA

"I have confined my observations to the approach of the plan, which, I believe, will not solve the basic and pressing economic problems of the country. These are, the agonising poverty and the colossal unemployment of the mass of our population living in the villages. If these problems are not satisfactorily solved, all our dreams of a new social order based on democracy, non-exploitation and equality will fail to materialise"

This was what Acharya Kripalani observed 21 years ago, speaking in Lok Sabha on Second Five Year plan. The same concern for the rural population, the same emphasis on employment echoed when he spoke in an exclusive interview to Editor Yojana.

The elder statesman has analysed various problems confronting our country with a perspective characteristically Gandhian, practical, realistic and forthright.

Yojana: Do you think that in the changed circumstances the economic and social priorities in planning also should change ?

J.B.: The problem in India is how to utilise the immense human resources that are available in the country. Unless this problem is solved we cannot make much advance. Even health, sanitation, education and other social and cultural programmes will have little effect unless the question of employment is solved. This can, however, be solved to a great extent through decentralised industry. This does not mean that there should be no centrailised, mechanised, big industry but as Gandhiji said all the primary requirements of the villagers must be provided within the village or within a group of villages. Centralised and mechanised industry was recommended to save human labour which in the long run may cost more than decentralised production.

"Village Requirements Must be Provided within the Village or within a Group of Villages"

When Gandhiji talked of village and cottage industries he was thinking in terms of what was possible under the conditions prevalent in India in those days, but he had no objection to electricity being used and supplied to every village so that the drudgery of hard work could be avoided and production increased These days every big machine has standardised parts They are manufactured in different departments of a big factory, from where they are collected and put together to produce a big machine But these parts instead of being produced in different departments of a big factory could be produced in the homes of the villages with the use of electric power and lathe This kind of decentralisation is preferred even by the capitalists, as in this type of industry there is no fear of strikes and lockouts Also this method of production is cheaper

Something of this sort is happening even today in the Punjab. Small parts of scooters, sewing machines etc are being produced there in this fashion However, this kind of decentalised industry with the use of electricity must supplement the craft work which is carried on through manual labour

Yojana: JP has said that spare time of the students should be properly utilised Now that the schools and colliges are closed for the summer vacation, what can the students do during the vacation ? What is your advice?

JB: They can go to villages and try to educate the villagers in many different ways They can show them how to keep their houses and surroundings clean. They should try to impart to the rural folk knowledge of the three R's. They can help them to build roads. They can help them to dig small canals. Anyone who goes to the village from a town can always find some scope for doing some useful work depending on the circumstances of the rural area one goes to. The students if they are really well-informed can also tell them about how to make best use of the village Panchayats.

Yojana: What is your advice on students taking part in politics?

JB: You must define politics Gandhiji was engaged periodically in the Satyagraha movements. These were organised at long intervals. During those intervals he carried on constructive work Was he then doing political work or could it be said that he had left it. Advancement of the country involved not only political work but also some social and economic work. All these are interconnected Agitational politics is different. I feel tha it is not possible for the student to carry on their studies and also participat in agitational politics unless they are prepare to leave their studies for sometime. Other wise, every work of constructive nature i the social or economic field must be consi dered as their participation in politics.

Yojana: Don't you think adult education should ge better attention ?

JB: It is very important. Many of the problem of our country could easily be solved wit the spread of ecucation. Students shoul take the responsibility for educating th adults Not only during the vacations, bu also during their spare time. It should b a continuing process, not sporadic.

Yojana: You wanted top priority to be given to emp loyment What will the old and disable persons do? Do you feel the Governmen should have some old age-pension schem for these people?

JB: It is good to have old age pension, if th Government can afford it But I think th primary duty of the Government is to se that all able-bodied persons get remunerativ work In a vast country like India, I think the Government cannot, as it is constituted at present, undertake to maintain all old and disabled people However, efforts could be made to provide some work which could suit their physical capacities

Yojana: Government has been showing great interest in developing a sense of unity among people belonging to different regions of the country and achieve emotional integration between them and among them. After two or three decades of conscientious effort in this direction, we find that regional and linguistic disparities still continue and the proper kind of emotional integration and better understanding has not been truly achieved Do you have any suggestions to make in this regard?

JB: Again it is a question of employment. Why do the people from the South come to North? Because they have employment opportunities in the North and, therefore, they come and settle down, which is a good process in integration More employment opportunities should be created in the South so that people from the North would certainly go to South, settle down there and will imbibe their language and culture Integration cannot be an isolated programme. It should be related to life and living. □

"Advancement of the Country involves not only Political Work, but also Social and Economic Work"

"The Primary duty of the Government is to see that All Able-bodied Persons get Remunerative Work"

Rural development plays an important role in the overall economic development of the country since four-fifths of our people live in villages. Developing a few enclaves of prosperity surrounded by vast areas of poverty, under-nourishment and disease without the benefits of development being widely spread out to cover the whole country of various strata of society, would amount to having little dent in the development of the rural sector.

Planning for Rural Development

S.C. TRIPATHI

DURING THE PAST two and half decades, some progress has been made in rural development. But the position is still far from satisfactory. More than 40 per cent of the people mostly in rural areas are still below the poverty line In 1971, according to estimates of the Bhagwati Committee on Unemployment, 85 to 88 per cent of the total unemployed and under-employed persons were in the rural areas. Even the Fifth Five Year Plan Document says "there is no doubt that living conditions have improved everywhere even in the most backward districts. Yet large numbers continue to remain poor" The existence of poverty is incompatible with the vision of an advanced, prosperous, democratic, egalitarian and a society based on the principles of social justice implied in the concept of a socialist pattern of development. In fact, it holds a potential threat to the unity, integrity and independence of the country" It is in view of these facts that elimination of poverty has been given the highest priority in the Fifth Five Year Plan

The two main causes of poverty in India are under-development and inequality, which are extensively prevalent in rural India Some studies made recently indicate that in the wake of Green Revolution, inequalities in the countryside have further increased during the past few years.

The removal of poverty and development of the rural areas in keeping with the Directive Principles of the Indian Constitution call for a multi-pronged action-oriented series of programme In the strategy for planned rural uplift, the development of agriculture implying an increase in productivity and distributive justice, in relation to the ownership of land and allied industries like fishery, forestry and animal husbandry have undoubtedly a prominent place. All the Five Year Plans including the current one have given fairly high priority to these sectors in terms of financial allocations. But there is still vast scope for further investment in these sectors Land reforms have to be made more effective by bridging the gap between contemplation and implementation. Yet. at the same time, it must be appreciated that keeping in view the existing surplus agricultural labour which is estimated to be about one fourth of the total working force with immense potential for further growth and the limited cultivable land the uplift of India's countryside and its masses calls for a balanced integrated growth, a proper balance and integration between agriculture, on the one hand and teritiary and secondary industries on the other. Unless such inter—and intra-linkages are properly worked out for a cluster of growth centres in such regions of each State, and implemented with the necessary drive and tempo the problem of tackling poverty is likely to take a very long time The problems of rural poverty, unemployment and under-employment are likely to grow further without such a multi-pronged effort on a national scale. The continuous inflow of labour in search of employment opportunities in cities and towns seems to be essentially an overflow of rural poverty, unemployment and under-employment. Unless job-opportunities are created in villages and semi-urban areas, it is very difficult to check further influx to cities

Shri Tripathi is Joint Director, Planning Commission.

Fluctuating Harvests

It is a matter of deep concern that in our country where 80 per cent of the population is engaged directly or indirectly in agriculture the country has had spells of good and bad harvests and is still not self-sufficient in food. One of the basic tasks of the planning in India has been consistently to transform the subsistence agriculture in the country into a viable economy capable of generating surplus The production of foodgrains before the on-set of planning era in the country was 35 million tonnes in the year 1949-50. It reached about 67 million tonnes during 1955-56 the end of first Five Year Plan, 82 million tonnes by the end of the Second Five Year Plan in 1960-61 and 89 million tonnes by 1964-65.

High Yielding Seeds

However our country launched a new and bold programme in 1966-67, called the "High Yielding Varieties Programme for foodgrains". Due to the impact of this high yielding varieties programme the foodgrains production reached 95 million tonnes in 1967-68 Since then the upward trend in foodgrains production has been consistently maintained with the production reaching a peak 108 4 million tonnes in 1970-71

The experience of high yielding varieties programme led to crystalisation of the agricultural strategy for the Fifth Five Year Plan. The two paramount objectibes of the Fifth Five Year Plan are firstly, to generate an overall growth rate of4 7 per cent per annum in agricultural production and 5 per cent in allied sectors such as livestock, fisheries and forestry. The second objective is to make a significant contribution towards substantially improving the economic condition of the 40 per cent of the total population of our country mostly living below the poverty line through greater participation of small and marginal farmers and agricultural labourers in the intensive agricultural programmes and also providing subsidiary occupations to them particularly in the slack season These measures are intended to impart a greater degree of stability to agricultural production in rainfed areas, which in turn would act as a defence against

the sharp decelaration in agricultural production in such areas. For such integrated rural development programmes financial base is being created for the rural poor through setting up Farmers Service Societies and regional rural banks in such areas of the country where commercial banks have not found their operations profitable

Dependence on Imports

Despite the step-up in output of foodgrains and oilseeds since 1960, we have not been able to totally do away with imports With the growth in population, the generation of surplus in agriculture is offset and consequently there is continuing need to further step up the output. The technology of high yielding varieties programme, the introduction of rice and wheat crops in non-traditional tracts, the extension of groundnut cultivation in irrigated areas and also the measures taken to stablise agricultural production in rainfed areas have resulted in the stabilisation of agricultural output. The foodgrains imports have registered a decline from 10 0 million tonnes in 1966 to about 2 0 million tonnes in 1971, 3 6 million tonnes in 1973 and 4 8 million tonnes in 1974 With the achievement of an all time record foodgrains production of about 121 million tonnes during 1975-76 and the continuance of a similar tempo in agricultural production in the current year, the country may be said to have reached a stage when it will not require any further imports of foodgrains

It is equally necessary to accelerate the process of decentralisation of industrial growth We should evolve a short as well as long term programme of developing and grooming growth centres, away from the present centres of industrial concentration in all the States. It is well-nigh impossible to think of industrialisation of each and every village. On the basis of the available infrastructural facilities like transport and communications, power, skilled labour, entrepreneurship, banking facilities, raw materials, etc, we should draw out a list of potential growth centres in each and every State and try to develop a few of them at a time spread over a few years In these centres, the State Industrial Development Corporation could develop industrial areas, estates close to the villages in which industrial sites/sheds could be sold or leased out to the prospective entrepreneurs. It is in realisation of the coordinated agro-industrial development programmes that the Fifth Five Year Plan included a bold programme of integrated Rural Development.

The place of cottage and small industries in the village is next to that of agriculture. It is estimated that more than 20 million people are engaged in the village and cottage industries in the country. For relieving pressure on land, we have of necessity to take recourse to programmes capable of generating millions of non-farm jobs in viable small scale rural industries based on local raw materials, skills and demand. The rising purchasing power in the rural areas and the encouraging progress in rural electrification present both a challenge and an opportunity to the fostering of subsidiary as well as small scale industries in the rural areas It is recognised that all the villages cannot be developed simultaneously, nor, all are suited for industrial development. Yet there are a large number of big villages which could promote linkages with urban areas These centres of growth or focal points can act as levers of industrial spread in remote rural and backward areas. Apart from evolving a functional relationship between agriculture and rural industries, there is need for securing a coordinated growth of agriculture and rural industries, power and communications etc In the Fifth Plan, in addition to the continuation of the existing 49 rural Industrial Projects under Centrally sponsored schemes, it has been decided to start 62 new projects mostly in selected backward areas and these will be coordinated with the programme for the development of village industries

Need for Industrial Cooperatives

The factors inhibiting the progress of small industries including industrial cooperatives have largely been the paucity of raw materials, industrial extension serivces, and credit and marketing facilities. The policy measures to overcome these problems include a progressive increase in the allocations of imported and indigenous raw materials which are in short supply, the control on production and prices of yarn required by weavers, reservation of additional items for exclusive development in small sectors, provision of concessional finance and investment and transport subsidies for promotion of small industries in the backward rural areas where the artisans engaged in traditional rural industries are living below the poverty line. The principal objectives of the programme for development of small industries in the Fifth Plan are to facilitate the attainment of some of the major tasks for the removal of poverty and inequality in consumption standards of the rural workers and artisans, through creation of large scale opportunities for fuller and additional productive employment and improvement of their skills

A remarkable headway has been made in providing research findings for use by farmers in their fields as emerging from coordinated research Projects of the Indian Council of Agriculture Research, the research complexes of agricultural universities and by special Central institutions set up for dry land farming research. It is in rural industrial and in subsidiary activities that we have yet to go a long way in determining the technological factors most suitable to maximising and diversifying production The paramount need to developing rural industrial and agricultural allied activities, such as livestock breeding, fisheries, dairying and forestry on a more methodical and scientific basis can hardly be over emphasised Given the necessary determination and organisation, India, may, in course of time, not only be in a position to feed its growing population but also, become capable of exporting agricultural com modities both unprocessed and processed to other countries of the world. □

PRODUCE MORE
FOR
SELF-RELIANCE

Harnessing Sunshine for Rural Development

N. D. BATRA

The modern sophisticated Indian technology based on non-renewable energy reserves, like oil, non-coking coal and natural gas etc. cannot run beyond a few decades. Hence there is an urgent need for economic development based on replenishable resources in the country.

In many momentous ways, solar energy seems the perfect answer to our energy problems It is completely benign to the environment It falls in everyone's backyard and it is everlastingly abundant. In just one year the radiation reaching the surface of the Indian soil exceeds the total amount of fossil energy that will ever be extracted in India.

According to the Fuel Policy Committee Report (1974) the consumption of commercial and non-commercial energy for the whole of India for the years 1960–61, 1965–66 and 1970–71 is tabulated below –

It will be seen from the table that seven-eighth of the energy consumed under columns 5, 6 and 7 was used in villages Besides the villages had a significant share in the consumption of kerosene and diesel (col. 3) which are mainly used for lighting and irrigation pumps, respectively India's population which is about 550 million is likely to be 800 million by the end of the present century. With this increase in population, the energy requirements of Indian villages by the turn of the century will have grown nearly twice the energy consumed in rural areas in 1970

Fortunately, India is well placed in having a very important natural advantage i.e. perpetual sunshine in the most parts of the country For ten months of the year, and for six to eight hours a day, most parts of India receive fairly high intensity, uniform sunshine. This renewable, non-polluting energy source is so pervasive and diffusive that it can be harnessed most economically on small scale to meet the needs of individual families and/or group of villages. It is through this replenishable source that the dream of Mahatma Gandhi, can be realised Solar energy gives the rural India a chance to build themselves up as autonomous republic with the loosening of urban control over their inputs.

There are about 4 5 lakh villages in the country with a population of less than 1,000 each where the energy requirement is low and which are thinly populated and away from the industrial centres. Solar energy could be an attractive alternative in these villages. It can meet small localised needs and can be put to a number of applications in rural areas. Some of the promising solar energy applications of rural interest are outlined below

Solar cookers which did not evoke much response in the early fifties may find acceptance with the rural womenfolk who have no inhibition in cooking outdoors. The development of simple stove-type solar cooker, using mud and glass panes will improve the prospects of solar cooking in rural areas. Though the technology is simple, yet practically all types of food can be cooked with this solar oven. Besides some of the advantages are· (1) its performance is not affected by wind; (2) there are no chances of dust falling in the cooking pot, (3) the food remains warm for hours if kept inside the oven even after sunset; and (4) it does not require frequent adjustment towards the sun. However, the success of any solar cooker will depend on whether it is within the reach of the common rural folk

The solar water pump which will have capacity between two and five horse power, is being developed principally for use in rural areas. It will have no recurring power expenses, and should last more than 10 years. The prohibitive cost of the initial unit—Rs 50,000 is not as staggering as it sounds When compared to the cost of conventional generation of electricity and its transmission to remote villages, a solar water pump may become economically feasible for many parts of the country

The solar power station project hopes to develop a mini-power unit that can be used in rural India to collect solar energy and transform it into electric energy for lights, fans, TV sets, and small-scale machinery In one such unit, which is

Year	Coal (m. ton)	Oil (m. ton)	Electricity (bl. kwh)	Firewood (m. ton)	Cowdung (m. tom)	Vegetable waste (m. ton
1	2	3	4	5	6	7
1960–61	47 1	6.75	16.9	101.04	55.38	31.08
1965–66	64.2	9 94	30.6	111.82	61.28	34.41
1970–71	71.1	14.95	48.7	122.75	67 28	37.77

Source : Report of the Fuel Policy Committee 1974

now under construction, solar energy would be collected to produce steam, which would then drive a turbine to generate electricity. The mini-power plant being built now will be commissioned by the end of the current year.

Research on solar desalination plants has been confined to the laboratory so far, but the Central Salt and Marine Chemicals Research Institute, Bhavnagar, has produced a successful prototype. Experts feel that solar energy is ideally suited to converting brackish water into potable water, thus benefiting countless villages dotting the far-flung country.

Research over the last 15 years has produced three major designs for solar water heaters with capacities from 140 to 200 litres. However, since the cheapest of these coasts Rs. 3,500 the solar water heater is still too expensive for the average consumer

Simple solar heating and cooling systems (not direct-conversion devices) have been developed and some are under experimental operation in the country. The University of Roorkee is testing a heating cooling system, and a BHEL workshop in Hardwar is being heated by a solar system.

Agricultural industries stand to gain substantially from the development of a solar dryer. Agricultural produce—rice, wheat, corn, chillies, dry fruits and many other items such as tea and timber can then be hygienically and uniformally dried. Many research centres such as the Forest Research Institute, Dehra Dun, have already produced prototype solar dryers.

It is expected that some of these solar-energy devices will be fully tested and operated before the end of 1977. Solar energy scientists are understandably cautious Before they publicise any of their devices or projects, they want to be sure it has been thoroughly tested and used —not just in laboratories.

A special attraction of this year's Republic Day Parade was the presentation of a tableau of the Department of Science and Technology. The Tableau depicted for the first time, working models of solar cell and solar grain dryer which could be used with advantage even in the remotest rural areas. Besides the Tableau generated 70–80 watts of electricity to work a TV set which relayed the Republic Day proceedings and in addition provided lights in the hut shown in the tableau. It is expected that by 1980 solar power from solar cell panel may become competitive to diesel power.

In pursuance of these achievements by the Indian scientists in the field of solar energy, an International Solar Energy Congress will be held in the month of November this year at Vigyan Bhavan, New Delhi to discuss the local theme: "Sun: Mankind's Future Source of Energy".

Thus it can be inferred, and perhaps rightly too, that solar energy could be a boon for Indian villages, particularly the ones situated away from industrial centres. Pumping irrigation water, drying and processing agricultural products, producing potable water from brackish water, cooking, lighting and entertainment are some of the important fields of solar energy applications for rural areas which need to be given priority in our development efforts.

It is too early to estimate the impact solar energy will have on India's total energy requirements. However, the solar energy programme is forging ahead with support from the Government, industry and private institutions. "We are now reaching the production stage", says Dr. H.N. Sharan, solar energy expert and director of Bharat Heavy Electricals Limited (BHEL), "and it's time to get these devices out to work"

However, judging from the current status of this technology, its large-scale application in the next few years is not very likely. Yet, there is no reason why direct use of solar energy cannot be undertaken exclusively within the next 15 years. It all depends on how serious we as a nation are about using this inexhaustible resource □

‑ELLERS

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Books of wisdom besides, spreading travels above all properly written—the deserving one will come

Yojana Quiz

1. What is Kuro Siwo?
2. An air flight at a fixed height above sea level round the earth over the circumference passing through the poles would reveal less mileage then a flight round the equator—why?
3. What is the difference between artery and vein?
4. What is meant by
   (i) Detente
   (ii) Shuttle Diplomacy
5. What is the trophy for Asian Football?
6. With which sports and games are the following terms associated?
   (i) Dribble
   (ii) Cow
   (iii) A Half Nelson
7. With which sports and games the following places are associated?
   (i) Eden Gardens, Calcutta (ii) Chepauk Ground, Madras
   (iii) White City, England (iv) Forest Hill, USA
8. In XXI Grand Olympics in Montreal India finished with how many medals?
9. Who was the South African scholar and traveller, who visited India during 1333 A D and spent 8 years in India and has written about the reign of Mohammed bin Tughlaq?
10. In what state of India are the following most abundantly found?
    (i) Gypsum (ii) Manganese
    (iii) Chromite
11. How is the President elected in India?

Answers:

(1) Kuro Siwo (Black current or Japan current) is a warm ocean current flowing up the Asian east coast and is driven by Westerly winds towards North America. (2) Because the earth is an oblate spheroid (a ball flattened at the poles) (3) Artery is a system of branching tubes carrying blood from the heart to all parts of the body. While vein is a tube that carries blood from some parts of the body back to the heart. (4) (i) Detente: end of strained relations between two countries (ii) Shuttle Diplomacy The rapid flights from one world capital to another and back again in an effort to persuade rival parties to accept compromise formula. (5) Merdeka (6) (i) Football (ii) Rowing (iii) Wrestling (7) (i) Cricket (ii) Cricket (iii)Greyhound Racing (iv) Lawn Tennis (8) India finished with no medals. (9) Ibn Batuta (10) (i) Rajasthan (ii) Madhya Pradesh (iii) Bihar (11) The President is elected indirectly by an electoral college consisting of the elected members of the both Houses of the Parliament and the elected members of the legislative assemblies of the States

Quotation Box

We do not want to make a hurried change which is no good. We do not want to do anything for the purpose of demonstration. We want to do things in a manner to benefit the people and not for the sake of demonstration. For we do not attach any value to demonstration.

. Morarji Desai.

*

Only rich men, it seems, are foolish enough to keep as many newspapers going as a democratic country deserves. They distort news and comment, but keep a greater variety of both

—The Economist

*

The mad rush for technology is creating problems in every field and even nature is being destroyed.

—Dr. Pratap Chander Chunder

*

Democracy provides rights but it can only succeed if responsibilities are fulfilled. Otherwise, some rights have to be curtailed in the national interest

—Tarun Banerjee in the Statesman.

*

Summits. Occasions on which pieces of paper are signed with gold pens and platitudes are aired for the benefit of a supposedly gullible public.

. . William Davis

*

I feel more comfortable in front of the cameras because no one is trying to knock my head off.

—Muhmmad Ali

*

Governments will come and Governments will go, but there will be certain people who will always be on the winning side.

...George Fernandes

*

I am not isolated.

...Z.A. Bhutto.

*

Water Hyacinth for Benefit of Man

R.R. KHAN
AND
R.C. GUPTA

WATER HYACINTH (*Eichhornia crassipes Solms*) has long been considered a serious threat to our agricultural and piscicultural operations Researchers have now found that this weed can effectively be utilized as a means of treating effluents and producing biogas, fertilizers and livestock and poultry feed

The weed, a native of Brazil, is believed to have been introduced in Bengal as early as 1888 It belongs to the family Pontederriaceae and is popularly known as *Kachuripana* in Bengal, *pisachithamara* in Andhra Pradesh, *akasathamarai* in Tamil Nadu, *kolavazha* in Kerala and *Jalkhumbhi* in North India The plant consists of a fleshy vertical stem called rhizome, which floats just beneath the water surface and is protected by shields of folded leaves It remains alive even when the adverse conditions kill the surface leaves The growth of water hyacinth is mainly by vegetative means. The growth of this weed is so prolific that it can double in number every 8-10 days in warm and nutrient-rich waters. In India, there is an estimated 6,00,000 hectare water area which is covered with water hyacinth.

The ravages caused by this problem-weed are extensive. It impedes run-off in streams and promotes backwaters and flood conditions It affects drainage of cultivated land and renders it unproductive The mat-like spread of the weed cuts-off air and sunlight from the water rendering it unproductive for fish culture It also obstructs wave action in the water and interferes with the activities of birds Spraying of larvicides and adopting other antimosquito measures become difficult in weed-infested water bodies Water hyacinth 'rafts' also hinder navigation and interfere with landing facilities for ships.

Shri Khan and Shri Gupta are with the Industrial Toxicology Research Centre, Lucknow.

Because of the extensive damage caused by it, several state governments have taken steps to destroy this weed In West Bengal, the eradication of water hyacinth has been made compulsory by legislation within notified areas. Special water hyacinth weeks are organized during which parties of workers clear infested areas and heap them up at the banks for eventual use as manure. In Assam, provisions are made in municipal and local-self government act to enforce land holders to eradicate water hyacinth. The Madras Agricultural Pests and Diseases Act, 1919 makes the destruction of the weed obligatory on the part of the owner or the occupier of the land, channel or pond. In Uttar Pradesh, the Government assists the removal of water hyacinth

Growth of Water Hyacinth in a pond

by grants for compost making.

The benefits resulting from these legislative and other regulatory measures, however, have been comparatively limited due to the laborious task of removing the weed and its quick regeneration. The attempts to use chemicals such as a copper sulphate, lead nitrate, sodium arsenite, and methosone have also been mostly unsuccessful due to the high cost of pesticides.

Pollution Control

Having failed to check the menace of this noxious weed, researchers have now unravelled the potential of the weed to control pollution. The scientists at US National Space Technology Laboratory (NSTL) have recently demonstrated some remarkably simple and economically attractive solutions to the problem of water pollution using water hyacinth.

Water hyacinth is found useful in treating effluents polluted with toxic heavy metals. In static laboratory experiments, water hyacinth rapidly absorbed gold, silver, cobalt, strontium, cadmium, nickel, lead and mercury. As much as 97 per cent of the cadmium and nickel was absorbed through the long trailing roots within 24 hours. It has been found that a hectare of weed has the potential to remove 300 gm of cadmium or nickel from about 53,000 gallons of polluted water in 24 hours. The scientists have claimed that this process would not only clean toxic effluents from factories but could even be used to concentrate and reclaim valuable metals.

The weed is also capable of absorbing phenol and phenolic substances commonly found in domestic and industrial sewage and even in drinking water. Laboratory experiments revealed that it could remove 12 mg of phenol in 24 hours, from the water in which it was grown.

Raw sewage from small communities contains on an average 35 mg per litre of nitrogen and 10 mg per litre of phosphorus. An experimental half hectare water hyacinth lagoon with a minimum sewage retention time of two weeks is found to purify to acceptable levels the daily waste of one thousand people.

This is not for the first time that the idea of utilising water hyacinth has been experimentally proved by American Scientists. In India, as early as 1969, workers at Public Health Institute, Patna have reported that water hyacinth can be utilized for the treatment of industrial wastes and septic tank effluents.

TABLE 1

Chemical Composition of Water Hyacinth (Percentage)

	Green weed	Ash	Compost (dry matter basis)	Fodder (dry matter basis)
Moisture	95.5	—	—	—
Organic Matter	3.5	—	—	—
Nitrogen	0.04	—	2.05	0.97–2.57
Phosphorous (Pentoxide)	0.06	7.0	1.1	0.36
Potassium (Oxide)	0.20	28.7	2.5	5.6
Sodium (Oxide)	—	1.8	—	3.5
Calcium (Oxide)	—	12.8	3.9	3.0–4.0
Magnesium (Oxide)	—	—	—	0.96
Chlorine	—	21.0	—	3.0–4.0
Ash	1.0	—	—	—

The weed thrives well in the digested sugar factory wastes and coagulates and removes turbidity and bad odour. In septic tanks, the weed is found to reduce the total count of coliform bacteria from 1,70,000 to 10 per 100 ml in 24 hours. This phenomenon is explained due to possible agglomeration of colloidal particles in the sewage which quickly settle in the bottom along with the bacteria.

Other Uses

The water hyacinth has also been utilized as a manure . Due to its high nitrogen and mineral content (Table 1), water hyacinth can be used as an organic fertilizer and soil conditioner. Its high moisture retention properties improve the condition of sandy soil. Water hyacinth mixed with earth, cow-dung and wood ash gives a compost in about two months time. This compost is twice as rich as town compost and four times as rich as farmyard manure. It is therefore ideal for jute and rice fields, for vegetable gardening and fruit growing.

Water hyacinth also shows considerable promise as an animal feed supplement. When used directly as a fodder, water hyacinth proves inferior to the common fodder. The weed is eaten by cattles and horses in India. It is reported that milk yield in buffaloes is enhanced by 10-15 per cent but the milk is more watery and the extracted butter lacks in consistency and flavour.

As poultry feed, the live water hyacinth is reported to have increased the yellow colouration of egg yolk. Even after several yars of feeding, no deterioration in the egg-laying capacity of the poultry was seen.

Production of Biogas

Water hyacinth can also be used to produce biogas containing 60-80 per cent methane. It is thus a promising substitute for natural gas. The research at NSTL shows that 374 litres of biogas can be produced per kilogramme of dried water hyacinth. Its fuel value is 21,000 btu per cubic meter as compared to 31,600 but per cubic meter for pure methane. It is estimated that one hectare of water hyacinth fed on sewage nutrients can yield 0.9-1.8 tonnes of dry plant meterial per day. This biomass can produce 220-440 cubic meter of methane with a fuel value of 7–14 million btu. In addition, the aludge that remains after fermentation is a useful fertilizer because it retains msst of the nitrogen, all of the phosphorus ard other minerals.

Raw Material For Plastics

Attempts have also been made to utilize water hyacinth as a raw material for paper, plastics and other commercial products but so far no industry based on water hyacinth appears to have been established. The manufacture of paper from the dried weed stem has been attempted in West Bengal. It is found that addition of jute or cotton fibres to the extent of 8-10 per cent of the weight of pulp is considered necessary as the paper prepared from water hyacinth stem alone is translucent.

Greater emphasis is now being given by the Government to the conservation of resources and recovery of essential elements from waste products. Water hyacinth which was hitherto considered a waste can be put to a variety of uses. Realising its importance, the Indian Council of Agricultural Research is shortly going to launch an All-India Coordinated Research Project at Bhubaneshwar, Orissa. Besides other things, the project will concentrate on using water hyacinth for rearing cattle, pig and goat. ☐

For centuries man has criminally destroyed the precious natural manure, the cow-dung, for burning. This has immensely affected soil fertility and food production. In the wake of the energy crisis the recent discovery of gobar gas technology will not only produce many times more energy but also leave a residue far richer manure says,

A.R. PATEL

GOBAR—
A Potential Source of Energy

RECENTLY A NEW chapter has been added in commercial application of Gobar Gas an alternative source of fuel There is sufficient evidence that the Gobar Gas technology can be applied on a mass scale for preserving "both environments and resources" and disposing of the sewege in a scientific and useful manner. In the ultimate analysis application of this technology in our rural areas will have a far-reaching effect which would help rural reconstruction. The Govar Gas as an alternate, yet cheap source of energy, has been endorsed by an International Workshop on "Bio-gas technology and utilisation" under the auspicies of Economic and Social Council for Asia and Pacific We have, therefore, to view the implications of this technology in the light of (i) our heavy dependence on oil as a source of energy for which we have meagre resources and (ii) transforming our rural life from absymal poverty to a level of reasonable standard of living

Oil has been the primary fuel used during 1975-76 and it generated the highest quantum of energy in India. According to official sources, the proportion of energy derived from oil was 30 5 per cent followed by fire-wood (26.5 per cent) Other sources of energy included coal (21 per cent), hydel and nuclear power (8 per cent), cowdung (6 per cent) and vegetable waste (8 per cent)

Now how can this energy crisis be solved? The answer lies in recycling of cowdung for the production and utilisation of bio-gas.

When the first gobar gas plant was installed by Jashbhai Patel in 1951, the significance of the event was not realised as fossil fuels were cheap, and the emphasis was on importing them into the villages Thus it was thought kerosene cookers, hurricane lamps, rural electrification and chemical fertilizers would raise the standard of living. With the high cost of rural electrification and pet-petroleum products, gobar has technology has once again come into focus The superiority of gobar gas plants in many respects over chemical fertilizer plants has also been endorsed by the United Nations Environmental Programme (UNEP).

Difficult Task

Sewere losses in transmission of electricity (18%) and extremely low load factors (1 to 14%) have led to the unfavourable economics of power distribution to the backward and rural areas Only 11 per cent of the villages with a population below 500 have been electrified despite the fact that about 60 per cent of 5,67,000 villages in our country have population below 500. Even the plans do not envisage power for about 2,80,000 villages with a total population of 141 million people (25% population) This, therefore, clearly reflects our inability to provide social amenities to rural population as also power for their various agricultural operations including energisation of irrigation wells and agro-based industrial units

In 1972-73 the total fertilizer consumption was about 3 million tonnes (2 million tonnes nitrogen). Of this 40 per cent was imported at a cost of Rs 135 crores at that time The rapidly escalating price of fertilizer and of the naphtha feed stock for fertilizer plants has made it imperative to develop Gobar gas as a source of energy.

Potential Resources

India with its large population of cattle can have no difficulty in obtaining adequate supplies of cattle dung. The Khadi and Village Industries Commission (KVIC) which has evolved a scheme to set up gobar gas plants in the country, has estimated that the fomantation of 75 per cent of the dung collected from the country's 226 million cattle (1961 livestock census) would possibly yield about 195 million MWH of energy per year (which is equivalent to about 24 billion litres of kerosene) and at the same time produce 236 million tonnes of menure. The nitrogen content of this manure would be around 2.5 million tonnes which is more than the nitrogen fertilizer capacity established in our country so far. According to the KVIC the quantity of cowdung being burnt as fuel is about 400 million tonnes However, if utilised for production of gas, the manure obtained therefrom would enable the country to increase foodgrain production considerably.

Gobar gas is obtained through the formentation of cattle dung anaerobically. The two constituents of this gas are 55 per cent mathane and 45 per cent carbon dioxide by volume. Dried cattle dung cakes burn with a lot of smoke and 11 per cent efficiency. Wood burns with less smoke and 15 to 17 per cent efficiency. The gas is combustible and has about 550 BTU of heat per cubic feet. When burnt through burners, it burns with hot blue flame (800° F to 1000° F) without odour or soot Gobar gas can be used as a fuel in kitchens for cooking, heating and lighting as well with the aid of suitably designed containers and burners which are obviously quite different from conventional ones But more important is the residual slurry which can serve as a rich source of organic manure so urgently needed in our rural areas

Shri Patel belongs to the Bank of Baroda, Bombay

for increasing agricultural production and land productivity. The manure contains about 2 per cent nitrogen as against only 0 5 per cent of it in the farm yard manure Moreover, on account of the rich humus content in this manure, the physical characteristics of the soil can be improved in respect of water holding capacity, prevention of water logging, soil aeration and the like As the manure is in finally divided form, it easily mixes with soil and thus prevents breeding of flies and mosquitoes It is free from offensive odours which are usually associated with compost manure A number of studies conducted all over the world have shown that by preparing a compost obtained by mixing the slurry released from bio-gas plants with green leaves or stalks and mixing this with small amounts of chemical fertilisers, farmers can get a highly efficient organo-mineral manure which gives excellent crops without impoverishing the soil.

Experiments at IARI have shown that the energy obtained from a family sized village model gobar gas plant producing about 100.0 cubic feet gas per day can be used for cooking, lighting, and running engines

Ideal Model

To develop "Gobar gas models" for small villages, it is necessary to have exact statistics on the human and cattle population, the daily yield of night-soil and dung, the efficiency of collection of these two inputs, the availability of water, the gas yield per unit weight of dung and night soil, the availability of other fermentable cellulogic wastes etc.

A 'Gobar gas model' for a village of 500 population with 100 houses and 250 cattle population may be hypothetically assumed to yield 597 kg of dry dung available for use (75% of the 3.2 kg dry dung per animal per day arrived at by the NCAR). This village can, therefore, be expected to generate about 3950 cft of gobar gas per day from cattle dung. Besides, if the village has latrines connected to gas plants, a further 500 cft of bio-gas would be generated. Thus, the total daily production of bio-gas in the village can be estimated at about 4450 cft According to one estimate, the actual daily energy consumption of this village is of the order of 50 kwh which is equivalent to 3333 cft of bio-gas This consumption is distributed as (i) 200 kwh for cooking, (ii) 200 kwh for energizing 10 pumpsets of 5 hp working for 5 hours per day, and (iii) 100 kwh for lighting, entertainment etc. At present the villagers obtain this energy by burning cow-dung, fire-wood coal or kerosene and by running pumpsets with diesel or petrol or electricity.

The total village production of 4450 cft of bio-gas corresponds to 667 5 kwh/day, or 244 kwh/year This energy is sufficient for 10 pumpsets at 20 kwh/day/pumpsets, 5 industries at 10 kwh/day/industry, one light in each of the houses at 0 675 kwh/day/house, energy for cooking in every house at 2 kwh/day/house, leaving a balance of 150 kwh/day for street lighting, etc In other words, bio-gas energy will meet 1 335 times the present demand of 500 khw/day and 62.5 per cent of the future demand of 1065 kwh/day, assuming a reasonable yield of 3 cft gas/lb of dry dung. In fact, it has been found that rural electrification is not going to reach 89 per cent of the villages with a population below 500. These villages, therefore, have no choice except adoption of bio-gas plants

On the basis of either a manure to dry dung weight ratio of 1.2:1 or a manure to net ratio of 0 4 lbs manure/cft of gas, the village production of organic manure would be estimated to be 0.8 tonnes per day with a nitrogen content of about 12 kg/day which would be about 295 tonnes of organic manure per year with a nitrogen content of 4 4 tonnes per year At the present level of consumption in India, 12 kg/hectare, the nitrogen output of the bio-gas plant can be used on 370 hectares which may be about 27 per cent more than the average cropped land areas of 290 hectares per village. Hence bio-gas plants may easily be able to supply to the village its fertilizer requirements at present levels of consumption. If 5 tonnes of foodgrains per tonne of nitrogen were estimated at a most conservative rate, it follows that the fertilizer produced by such plants would produce aditional 22 tonnes of foodgrains per year in the village This benefit is distinct from the other important advantages which would be had from saving in naphtha required for the production of fertilizer. In quantitative terms this saving would be approximately of the order of 2 tonnes of nephtha per village per year The village production of nitrogenous manure containing annual nitrogen yield of about 8.8 tonnes/year could also be obtained if a system of the manure-forming aludge to compost with refuse is developed.

Thus the adoption of bio-gas plants to produce fertilizer in the villages would yield extra benefits such as (i) dispersal of production units to villages, (ii) saving of capital, (iii) saving of foreign exchange, (iv) generation of more employment for less skilled workers, (v) generation of energy rather than consuming it and (vi) production of fertiliser at a source where it is consumed saving transportation

Based on this study by Prof A.K N. Reddy at the Institute of Science, Bangalore, the United Nation's Environmental Programme (UNEP) points out that 26190 bio-gas plants will produce so much fertiliser as a single 140 million coal-based plant but the bio-gas plants will cost $14 million less to build and will generate 130 times as much employment. What is more, the addedprosperity will be diffused over 26,000 villages instead of being

Large-scale coal-based Vs Bio-gas fertilizer plants

		Large scale coal based plant.	Bio-gas fertilizer plant
(i)	Annual production/unit	5,00,000 tonnes urea	590 tonnes compost.
(ii)	Annual nitrogen production	2,30,000 tonnes	8.8 tonnes
(iii)	Capital cost/unit	Rs 120 crores	Rs 4,000/-
(iv)	Foreign exchange component	Rs 50 crores	Nil
(v)	Employment/unit	1000	5
(vi)	Sales Rs. 4350/- tonnes N	Rs 100 crores	Rs 38,280
(vii)	Capital turnover ratio	1.20	1.07
(viii)	To produce 2,30,000 tonnes N		
	(a) No. of units	1	26,150
	(b) Capital cost	Rs 120 crores	Rs. 107 crores
	(c) Foreign exchange	Rs. 50 crores	Nil
	(d) Employment	1,000	1,30,750
	(e) Energy	Consumption	Generation

concentrated in a single township and since the fertilizer will be consumed where it is produced, it will eliminate the need for storage packing, and transportation.

While in the context of the present oil crisis there is every possibility that gobar gas plants can provide an alternative source of fuel and fertilizers, we should have a look at the problems challenging the expansion of the scheme and endeavour for their solutions right from the beginning.

Problems :

The mal-nutrition of the cattle has been the major constraint adversely affecting the quality as well as the quantity of dung. This can upset the viability of the gobar gas units and further it needs to be examined as to whether it would be adequate to have 4 to 5 cattleheads or 8 to 10 cattleheads per family for the purpose.

Since the gas plant's manure contains lot of water, its drying makes it lose fine physical condition along with a good amount of ammonical nitrogen which can be readily available to growing plants from the gobar manure water. Another problem faced in rural areas is that no space is available near homes where gas can be used. Methane gas cannot be transported economically to small quantities as produced in domestic gobar gas plants. Moreover, gobar gas contains about 45 per cent carbon dioxide which results in the deposition of carbon in engine/burners run with the gobar gas. Besides, cattle dung is a rich source of cellulose and hand-cellulose from which methane is obtained during digestion. Cattle dung is very slow formentor probably because it is poor in favourable nutrients which pass on to urine Thus some way to collect urine of cattle with cow dung is called for since most of the cattle in the rural hinterland are not stall-fed and there is no arrangement of modern cattle sheds under which cowdung and urine both could be collected with ease.

As the day temperature goes down the gas production falls. When the digestor temperature reaches to 10 C (50 F), the production of gas almost ceases. It is revealed that 80 cubic feet of gobar gas was produced from 150 lbs of cattledung every day when the gigester temperature was 25°C (77°F). The temperature was then kept at 28.3°C (85 F), the gass production was increased by 50 per cent (120 cubic feet per day). The production of the gas in many cases particularly in the northern States either has stopped altogether or it is too low..

Some of the farmers who have installed the plants for the efficient utilisation of farm wastes are unhappy with the performance of these plants Their expectations that these plants would provide solution to their problems of fuel and fertilizer have not been fulfilled because of operational difficulties. The maintenance and operation of the plants have become so embarassing problems to them These unforeseen problems have arisen largely due to inadequate arrangements of training, technical guidence and advisory services on their use and after-care The problem of either nil or less production of the gas could be attributed to low temperature, inadequacy of dung or incorrect mixing of inputs which include dung, water and other available farm wastes Haryana farmers have been experiencing a situation in which the plants produce abundant gas but it does not burn Often a problem of foul smell is also faced by the farmers, which because of the nearness of the plant to residence could discourage them

For lighting purposes suitable gas mentles are available in the market while for operating engines, certain modifications have to be introduced in the petrol engine to make it run on methane gas. Gobar gas lamps are reported to have been manufactured but are costly and often not available. Also some of these lamps produce an irritating noise.

Experiences

The findings of recent study of the problems and prospects of gobar gas plants conducted by the Indian Institute of Management (Ahmedabad) in Gujarat are revealing. Though restricted to one state, its findings about the economics of operations and problems in the working of the gobar gas plants are, in a broad sense, true for the entire country. The most frequently reported technical problems were raising to corrosion of gas holders and pipelines owing to rust, seasonality of gas output, frequent breakdowns of the central guide pipe and bursting of the hosepipe, cracking of the digester wall, difficulty in slurry stirring in the digester, the formation of scums hindering the release of the gas, shortening the life of the gas holder, choking of the inlets and outlets of gas plants resulting in disturbances to the flow of gas, accumulation of water in the pipeline and non-availability of the optimum level of water and dung resulting in improper loading of the digester and reduced efficiency. The socio-economic problems faced were—prohibitive cost of plant and cattle requirements for the poorest section, lack of backyard space owing to the residential pattern in villages, difficulty in dung collection because cattle are grazed in open areas rather than in fenced areas, lack of water sources near the plant, difficulty in connecting latrines with the plant because of their being away from the home.

Gobar gas plants of all sizes, small or big were found to be economically viable investments but the gains were marginal and the payback period of the initial investment was very long for small plants of 60 to 100 cubic feet, particularly if the benefits were valued realistically. This focussed the attention of the financing institutions to the fact that a differential maturity period and rate of interest on bank loans should be adopted—a longer maturity period and lower interest for smaller plants. From the economic point of view, the rationale of a flat rate of subsidy on all plants is not justifiable, particularly in the case of large plants.

The organisational network to reach the results of research and development in gobar gas plants and to provide follow-up services needs to be strengthened. This need was felt since a larger percentage of farmers belonging to low socio-economic groups faced technical problems and break-down in gobar gas plants

This calls for vigorous efforts in several direction. A comprehensive approach to the whole problem is called for. An integrated model of components of this package, such as technology, services and extension and training will have to be evolved. The elements of these components interact in such a manner that a drawback/lacuna at any one point or failure could seriously undermine the role of the others.

Research and development

The solutions to a vast range of problems challenging the utility and large-scale development or expansion of gobar-gas plants in our country have to be endeavoured by the advanced scientific multi-disciplinary research institutes. A broad spectrum of the tasks for research and development which various scholars have reviewed is outlined here.

1. Nature of extention services required for popularisation of gobar gas plants.
2. Technology of the collection and preparation of various fermentable materials other than dung such as poultry wastes, agricultural cellulosic wastes
3. Optimisation of fermentation process for villages where water is scarce
4. Detailed chemical engineering design of the gobar gas plant with maintenance of optimum conditions for methane production
5. Research and development on alternative materials such as ferro-cement, treated wood/plywood, polythene, glassfibre or Jute-fibre, etc for the gas holder.
6. Development of simple gas purification methods including utilisation of carbon dioxide and hydrogen sulphide
7. Study of safety methods and design of safety procedures for plant operations as also for holding and storage of methane
8. Study of the fertilizer characteristic of the sludge obtained from the fermentation of the various inputs such as animal, human and agricultural wastes.
9. Optimisation of composting techniques
10. Studies on fermentation parameters such as rate, gas yield, gas composition etc as a function of variables such as temperature, pressure, pH, viscocity, agitation etc for various input materials
11. Studies on the nature of fermentation chemistry and microbiology with reference to the choice and growth of microorganisms for optimum methane production.
12. Development of nomograms for extension workers to give on-the-spot designs to suit locally available fermentable materials and requirements
13. Research and development on alternative linings for the digester.
14. Studies of the fertification of bio-gas fertilizer with chemical fertilizers on the physico-chemical properties of the soil and their effect on plant characters
15. Design of auxiliary equipment for safety use of bio-gas for cooking, lighting and engines.
16. Comparison of social costs and benefits of small number of large size bio-gas plants Vs a large number of small size plants with reference to economies of scale and village population.

In view of the current problems confronting the farmers, IARI has expanded its activities of research and demonstration To popularise the scheme IARI had in the month of March 1975 held agricultural fair where gobar gas plant installed at the fair attracted most of the 3000 odd farmer-visiters to seek solution to their problems Further work on acceleration of fermentation in gobar gas plants, devising gobar gas burners of more than 60 per cent efficiency, development of alternative materials and designs of gas plant to lower the costs and improve its working is being undertaken the IARI and K&VIC. The Mi try of Industrial Development also set up a committee for directi on gobar gas plant work in its aspects. Experiments are in p gress at IARI to chemically prep manure from a variety of orga wastes like animal bones, hair a wool wastes and leather wast The effect of these manures on s properties, plant growth and c production should be studied detail.

It is a matter of great interest t even the United Nations Industi Development Organisation (UNID has submitted to its Committee Voluntary Contribution (CVC) project proposal to authorise th to spend $ 2000 for engaging consultant in India to prepare a first step, a detailed technical bl print on bio-gas plants with d regard to socio-economic facto The UNIDO is also keen to ren all necessary technical assistance initiating a national level integra project in India, under the UNI for development, manufacturing, p motion and extension of bio- plants. Thus, our scientists, admi trators and planners should lose time in seeking solutions to unforeseen problems and formu ting a policy which can involve rural areas to contribute their entl siasm to make the scheme a gra success and meet the challer presented by the oil produc and exporting countries

SIDE TRACK

TO AVOID the possibility of contracting a common infection that could cause mental and physical retardation to newborn children, pregnant women should keep away from cats and not eat rare meat, two University of Victoria scientists warn.

The infection, called toxoplasmosis, is caused by a microbe commonly carried by cats and found in rare meat, which has been ignored medically in North America mainly because of a lack of information, according to Dr. K.A. Karim, an immunologist studying the disease in association with Dr. Trevor Trust, chairman of the Bacteriology and Biochemistry Department.

Karim says if a foetus is infected it will probably show signs of either brain damage, psyeho-motor retardation, epilepsy or eye and ear problems a few weeks or months after birth. Contrary to medical practice now, "pregnant women would betested for toxoplasmosis as a matter of routine in their general prenatal checkups...

"Mechelonic.. have for the first time introduced A.C. Arc Welding Transformer Sets. It is of a remote control type with automatic voltage stabiliser.

Mechelonic ensures safety which is of primary importance in all welding applications, especially when welding is carried out at a higher altitude!.

The machine is indigenously built with know-how and materials of local origin. The machine serves import substitution.

—V.K. Narayanan

The Railways have liberalised the rules for the cancellation of tickets and refund of fares from March this year

The Station Masters have been empowered to grant refund of fares on the spot, reimbursement for non-commencement of journey or discontinuance of journey for which the Railway is held responsible, and refund on partially travelled tickets deposited within 24 hours after the arrival of train.

A passenger, who has lost his ticket, will also be permitted to continue his journey in payment of 25 per cent pf the total fare.

Special attention is given to tourists, students, and others, who will be allowed to travel by any other train if their reservations are not confirmed on any particular train.

—V.K. Narayanan

Aesthetic Pulse of a Nation

HANDICRAFTS

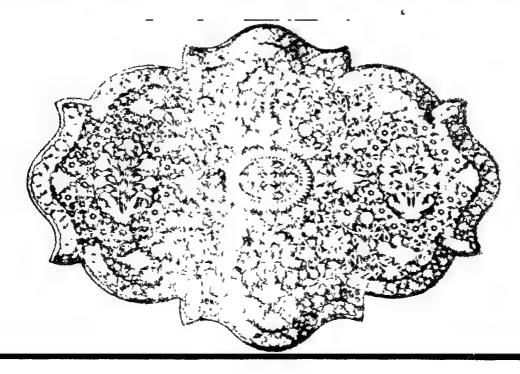
SWATANTRA

Handicrafts have played a significant role in the Indian non-factory industrial sector accounting for nearly fifteen percent of the contribution made by the unorganised industrial sector to national income. The recent trends in export of Indian handicrafts have revealed the growing popularity of reoriented handicraft items all over the world. The future of this industry depends upon the introduction of fresh designs in line with changing times.

Basketry is primarily a folk craft. It is a very important household industry in Manipur Nagaland, Arunachal Pradesh, Mizoram, and Tripura. Pic shows an intricate basket woven by Shri Laithanzama of Mizoram.

INDIAN HANDICRAFTS are as old as Indian civilisation itself. The earliest examples of Indian handicrafts date back several millenia: the ruins of Harappa and Mohenjo-Daro, the remnants of a great civilisation that straddled the Indus valley for almost 25 centuries. In the ruins were found fragments of beautifully printed textiles and pottery, uniformly baked and enticingly coloured, bronze and terracotta figurines, stealite seals, exquisitely carved and calligraphed ......a rich testimony to a tradition of artistic skills prevalent in that primeval age.

From those pre-Vedic times to the present this tradition has bloomed and wilted through the course of a changing history. But it has never died. Through aeons the soul of an aesthetic people has spoken not only in esoteric exercises of the intellect, but in every aspect of day to day existence so that the ordinary began to be cherished. Hence, utility and beauty became synonymous.

Shri Hafiz Khan has evolved many designs in marble inlay which have become very popular. He uses for his inlay work patterns, of Jasmine, rose, magnolia, chrysanthemum and marigold flowers. He generally makes table-tops, plates, boxes, trays and tiles.

Octogenerian at work. Shri Sompura is deeply erudite in the scriptures and ancient lore concerning temple sculpture. He has written more than a dozen books on the subject.

It is this long heritage of creative genius permeating the total environment that has been the springwell of inspiration for simple village craftsmen A feel for colour and form that is born more out of instinct than out of formal training; a way of life so steeped in legend and love that culture is inborn and an innate thrift and artistic impulse that sees magic in the most mundane materials...... these are the strands that coalesce to produce India's folk crafts. Vitally alive, the throbbing pulse of a people, personal as a signature and yet meaningful for their universal metaphor of beauty as a sacred spiritual trust Indian handicrafts are as varied as the people of the country. Almost all the materials produced by nature: be it grass, reed, palm leaf, wood, horn, cane or bamboo are fashioned into objects of beauty and utility by the skilled fingers of our craftsmen.

In order to safeguard the production and development of handicrfts, it is necessary that the craftsmen's skills are duly recognised and steps taken to remove their difficulties and to facilitate their functioning Thus the National Awards for Master-craftsmen was instituted by the All India Handicrafts Board in 1965. These Awards have been an annual feature since then Each award consists of Rs 2,500 in cash, a *Tamrapatra* and an *Angavastram*.

This year ten Master craftsmen were given the National Awards. With these, the number of craftsmen who have received the awards would be one hundred and ninety.

Amongst the Master craftsmen who received the Awards this year were great gurus of the classical tradition working in ivory, marble inlay, bell-metal, carpet-weaving along with rural craftsmen, who, for centuries, have used straw, grass and cane to weave intricate baskets for their personaluse. Apart from thes ten craftsmen were given Mer Certificates for their skill and craft manship in maintaining the traditio of Indian handicarfts.

Shri Prabhashankar Ognadbh Sompura hails from a family c sculptors wedded to temple archite ture. He has been responsible for th construction of 55 temples. Amon his latest creations is the constru tion of the Somanath temple a Somanath based on the ruins of th original temple. A few years ag this octogenarian, author of a doze books was awarded the Padm Shree

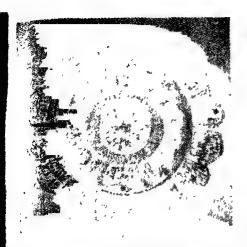
A self-taught craftsman 53 yea old Shri Lalthanzama has mad substantial contribution to cane an bamboo craft He evolves beautif designs and transfers them in simple and lovely creations in ca and bamboo which is both funciton and artistic. With rich experien spread over three decades he ha brought a new meaning and chara ter to even simple cane and bambo products

Hailing from a family of traditi nal brass and bell-metal workers Imphal, Thongam Amar Singh too to his family craft at the age twelve Apart from being an expe bell-metal craftsman, Amar Singh also good at knitting, weaving an instrumental music

Rashid Ahmed who has been give the award for Pottery is a perfe master not only in designing but all the techniques of this ancie craft. He has developed his ow colours and glazes which make h creations unique He has mad significant contributions in impr ving the techniques involved in bl art pottery.

Mohammad Sajid, a hereditor ivory carver has been in his trade fo over forty years. He was traine by his father Abdul Wajid, himse a craftsman of great repute. Saji is an acknowledged master in fir *Jali* work. He is also skilled i traditional ivory carving in Mugh style. A gifted designer himsel Sajid reveals in full his artistic attai ment in *Jali* cutting and *Parin* (bird) carving.

Forty four year old Hafiz Kha has been in the Marble inlay trad for over 30 years. The delicat time consuming work is so intrica that at times an onlooker cann admire the work with his nake eyes, though the craftsman uses n aid to his vision. He draws fro the Taj and his own rich imaginatio

Although Ghulam Mohamad Ra thor of Jammu and Kashmir is onl

Shri Jagdishlal Soni's experiments of working gold on various coloured glasses have won him wide recognition. Some of his outstanding creations have been appreciated overseas also.

35 years old he has the experience of over two decades in carpet-weaving. weaving. Many of his carpets woven in famous designs like Tabreez, Kirman, Khorasan and Isphan have earned high appreciation from overseas buyers

A member of the Ghadwa tribal community of Baster, Jaidev Bhaghel Ghadwa has been practising the art-metal craft for over a decade Although, only 29 years old, he has acquired mastery in the techniques and processes of Dhokra casting He has improved upon the aesthetics of the craft while retaining his ancestors' techniques

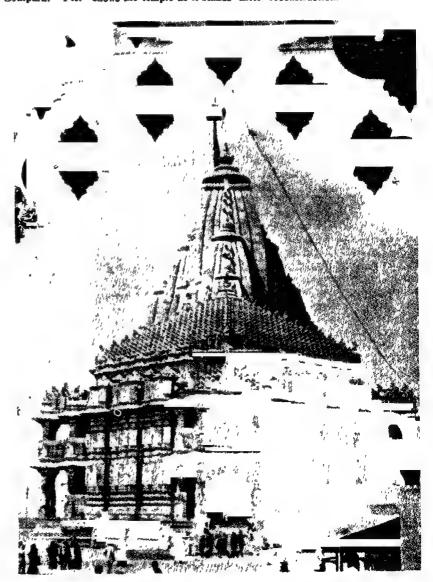
Thanka painting is the product of mind, nurtured on restrained imagination and religious devotion Tsering Wangdus, a resident of Leh in Ladakh is a mature hand in this craft whose paintings can be found in almost all the monasteries of Ladakh and even outside it A farmer by birth, wangdus studied local medicine called *amchi* for which he had no natural calling He met the famous Tibetan painter Shri Dewa Paksang under whose tutelage he learnt painting for over three years. Today he is an acknowledged master in Thanka painting.

The youngest craftsman to get an Award this year is Jagdishlal Soni He is also a graduate in history and holds a diploma in drawing Born in Pratapgarh Jagdishlal Soni took to the Thewa craft almost instinctively. Thewa work is gold work on glass. He has been in this trade for over ten years

Handicrafts are obviously labour intensive and therefore occupy a prominent place in the programme of employment generation.

In every country handicrafts form an important nexus for the cultural unity of the people. When objects into which tradition and culture are woven reach every home and hearth, they strengthen the social bonds They are the common objects of appreciation in terms of deeper symbols of integration. ☐

Shri Rashid Ahmed has been a potter almost since his childhood. He hails from a family of traditional potters whose ancestors were natives of Multan, about four centuries ago.

The Somanath temple has been revived from ruins by a modern Viswakarma, Sompura. Pic. shows the temple as it stands after reconstruction.

MAHARASHTRA

Breakthrough in Foodgrains Production

K.T. UPADHYA

MAHARASHTRA IS A deficit State in the production of foodgrains even though its dependence on agriculture is about 70%. The State requires about 110 lakh tonnes of foodgrains to feed its 5 04 crores of population as against the present production of about 70% of its total requirements. And with the anticipated increase of population to 6 04 crores by 1978-79, the foodgrains requirement works out to about 118 lakh tonnes.

Unfortunately about a third of State area has been facingt drought conditions for the last there to four years since 1970 The cultivation units being small, farming becomes uneconomic and eventually handicaps the necessary inputs The triennial average of foodgrains for the year 1969-70 to 1971-72 was only 450 kgs for the State as against All India average of 845 kgs. The Government has decided to take strong measures in bringing the agricultural productivity nearer to Indian Standards For this the State rightly fixed its objective to achieve near self-sufficiency in foodgrains production of 110 lakh tonnes for the Fifth Five Year Plan

In 1975, the Government of Maharashtra geared up all its concerned with foodgrains production This involved the departments of Agriculture, Irrigation and Power, Cooperation, Zilla Parishads and the four agricultural universities to work in a purposeful and coordinated manner, at all levels. The Co-operative Banks and the Nationalised Banks were entrusted with the extension of credit facility to all eligible farmers. The Nationalised Banks financing crop loans were placed on par, as far as possible, with the co-operatives in the matter of recovery The minimum scale of financing recommended per hectare was as shown in the table

It had been the responsibility of the Co-operative Department to ensure preparation of Normal Credit Statements well in time and the loans to be sanctioned and released latest by 15th May, 1975 to all eligible farmers. For this the Banks also were desired to accord highest precedence for sanctioning of loans.

The campaign involved 20 74 lakh hectares. For effective implementation of the programmes, coordination committees were set up in each district and block for planning and execution to ensure the coordination of a number of field agencies including Irrigation, Cooperation and Agriculture, although the primary responsibility rested with the Zilla Parishads.

The factors that were to make this programme a success were multiple The foremost was adequacy of irrigational facilities to food crops, wherever it was available. The existing irrigation was mostly utilised by cash crops and principally by sugarcane cultivation. Any cut therein would have adversely affected the network of sugar manufacturing units which have been sustaining agricultural and economic activities in the area, to an appreciable extent. Distribution of irrigation was to be arranged in such a way as to achieve an optimum production of both food and cash crops. In so far as public irrigation works were concerned, the State had directed that as far as possible, at least 50 per cent of the storage, was to be utilised for foodgrains production.

The quality of seeds was to be controlled and the permissible percentage of germination had to be ensured. For this, each bag of seed supply had to bear the mark of handlers at various stages, right from production till germination, and to arrange for tracing of faults at any point to enable sorting ou[t] and dealing with mistakes or irres[ponsibilities]. The required quanti[ties] of seeds were to be supplied b[y] the Taluka Seed Farms, the Nationa[l] Seeds Corporation and the fou[r] agricultural universities in the State

Through well organised distribu[tion] centres, the multipurpose co[-]operative societies provided inputs especially the fertilizers, in thei[r] normal credit statements with specia[l] attention to Kharif Programme But the area under hybrid and high yielding varieties formed roughl[y] one-third of total area under foo[d] crops and thus the normal credi[t] statements had to make provisio[n] for the other two-thirds of are[a] also. A large number of member[s] from credit cooperatives had becom[e] defaulters presumably due to pre[valence] of drought conditions durin[g] 1970-71 to 1973-74. Governmen[t] directives offered maximum advantage of the admissible subsidies, fo[r] inputs, in the area covered by th[e] schemes of Small Farmers, Margina[l] Farmers and Agricultural Labourer[s] Development Agency and I.A D.P blocks. The State had to be libera[l] in supplying inputs to cultivator[s] with the ultimate objective of attaining self-sufficiency through enhanced production of food crops. Th[e] State assured cultivators of a mini[mum] price at which it could procur[e] all the saleable produce in the even[t] of prices falling below the minimum This in turn reassured cultivators t[o] realise reasonably profitable return[s] on their inputs

The year 1975-76 was thus quit[e] a satisfactory year and there are al[l] indications substantiating a stil[l] more prospective agricultural yea[r] for the year 1976-77. □

Crop	Seed	Fertilisers	Pesticides	Total
	Rs.	Rs.	Rs.	Rs.
High yielding paddy	50.00	200.00	110.00	360.0[0]
Hybrid jowar	60.00	150.00	130.00	340 0[0]
High yielding jowar '302' & '604'	15 00	150.00	75.00	240.0[0]
Hybrid bajra	25.00	100.00	25.00	150.0[0]
Hybrid maize	60.00	250.00	130.00	440.0[0]

Shri Upadhya is Assistant Director (Evaluation) in Programme Evaluation Organisation, Poona.

COORDINATION IS an indispensable adjunct of planning. This is more so in the field of nutrition programmes. Several Departments and agencies both at the Central and Provincial levels are involved in implementing nutrition programmes.

Nutrition programmes can be broadly divided into three major categories, namely (i) Supplementary Feeding Programmes; (ii) Applied Nutrition Programme; and (iii) Health Based Nutrition Programmes

Coordination is desirable in the sphere of feeding programmes in regard to beneficiaries and also in respect of various foodstuffs supplied

(Kerala Indigenous Food) production in Kerala itself may have to be watched carefully in this connection. State Governments may also be given a free hand in setting up of local units with the cooperation and advice of experts of the Food and Nutrition Board as well as of those belonging to the National Institute of Nutrition.

In the Fourth Five Year Plan a Nutrition Coordination Group was set up in the Planning Commission to coordinate various programmes included in the Nutrition Sector This Coordination Committee helped to solve immediate problems besides drawing attention on the long range

Coordination of Nutrition Programmes

A.K. NANDA

under the programmes. It is essential because the same beneficiary may secure food at times under more than one programmes although instances of this type are not many. Under the S.N P wherever feeding centres have been located close by, the possibility of the same beneficiary getting food from more than one centres cannot be ruled out. Coordination is also desirable in respect of foodstuffs supplied under the various feeding programmes although this is a gigantic task The number of beneficiaries at the end of the Fourth Plan under the Special Nutrition Programme was about 38 lakhs and the number of beneficiaries under the Midday Meals Programme was about 120 lakhs It would be nearly impossible to attempt coordination of food stuffs supplied under these feeding programmes (leave alone other feeding programmes like the demonstration feeding under the Applied Nutrition Programme) as the main ingredients of food are in short supply. The oil crisis has added a new dimension to this question. If feeding programmes on a massive scale are to stay, these will have to rely to a great extent on local production of foodstuffs. The experiment of KIF

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aspects of nutrition programmes Gaining from the experience of this Committee, the Planning Commission also advised the State Governments to set up State level coordination committees.

The Committee on Pre-school Feeding Programmes of the Planning Commission has envisaged the following functions for the State Level Coordination Committees on Nutrition :

(i) To avoid overlapping in setting up feeding centres and in coverage of beneficiaries,

(ii) To work out as far as possible unform pattern of procurment, storage and distribution of foodstuffs,

(iii) To lay down guidelines for effective supervision and implementation of feeding programmes by coordinating the functions and responsibilities of field staff presently appointed under different agencies;

(iv) To work out in-service training programmes from time to time for field staff as well as for voluntary organisations involved in implementation of feeding programmes;

(v) To organise conferences and seminars from time to time on pre-school children feeding programmes;

(vi) To prescribe performance and obtain quarterly reports, regarding progress and to evaluate them from time to time; and

(vii) To examine evaluation reports on feeding programmes and take quick decisions of them

A recent review made by the State Coordination Committee shows that they are very useful bodies in implementing nutrition programmes. The Kerala State Government is of the view that the constitution of the State Level Coordination Committee has helped to avoid duplication and wastage of funds. The Maharashtra State Government has considered the State Level Coordination Committees to be very useful One major difficulty has been that these committees have not been able to meet regularly.

In the Fifth Five Year Plan, a Central Coordination Committee on Nutrition Programme has been set up in the Department of Social Welfare. The functions of the Central Coordinaiton Committee are:-

(i) To ensure adequate overall coordination among concerned Ministries/Departments at the Centre and between the Centre and States/Union Territories; (ii) To ensure systematic communication and consultation among the various agencies involved in the National Nutrition Programme, (iii) To set up adequate monitoring and evaluation machinery at the Centre and at the State level and watch the progress of various programmes to ensure harmonised and meaningful integration of nutrition with other programmes of health and family planning and environmental sanitation, etc. (iv) To keep a watch on the progress of expenditure and provide pooling of financial resources for nutrition at the Centre/State level for coordination and implementation of nutrition programmes. (v) To ensure proper utilisation of assistance from international and bilateral agencies for nutrition programmes; (vi) To review periodically the progress of research schemes pertaining to nutrition. (vii) To resolve problems pertaining to training and education in nutrition and any other matter concerned with nutrition; and (viii) To consider such other matters as may be necessary, incidential or conductive to the attainment of adequate nutrition level of the nation's population. □

A Socio-Economic Survey Of The Weaker Sections In A Haryana Village

R.D. GUPTA

A SOCIO-ECONOMIC survey of the weaker sections of a village Khanpur Kalan in District Sonepat (Haryana) was conducted by the Planning Forum, Rohtak University, on February 2, 1977 Khanpur Kalan is a big village consisting of 870 houses and a population of about 6000 The caste composition of the village shows that about 50 per cent of the population is Jat, 10 per cent Brahmins and 40 per cent Harijans The village has one Primary School and a High School At a distance of about 2 Kilometres there is a Gurukul for women which has a degree college, a training college (J B T & B Ed) and an Ayurvedic College for women About 20 households own tractors and there are about 100 tubewells and one Gobar Gas Plant Most of the persons have small landholdings averaging less than 5 acres

A random sample of 110 families comprising the weaker sections, mostly Harijans, petty traders, village artisans, sweepers etc was taken A family whose income from all sources was less than Rs 3600 per annum was taken to be a family belonging to the weaker section The nature and scope of the survey extended only over a day A large number of students who were given preliminary lectures and training of field survey techniques also participated The method of random sampling was found to be most feasible In fact, there was no alternative except the one that was followed and was found to be the most suitable under the circumstances

Abject Poverty and Debt Position

One of the most interesting features to come to light was that the village had large families inspite of three decades of family planning programmes The survey showed that 60 per cent of the families had members from 7 to 15 and hardly 18 per cent of the families were really small having members less than 5. The analysis of the existing members in various families showed that 76 per cent of the families had earning members upto 2, and 20 per cent had earning members between 3 and 4 and the rest had more than 4 earning members The analysis clearly shows that the demographic structure is highly distorted and the number of dependents in the family is quite large which seems to be the major cause of abject poverty in the village The study about the survey of borrowings in the village showed that about 51 per cent villagers continue to borrow from traditional sources, like village moneylenders and landlords 25 per cent persons refused to disclose their sources of borrowings Hardly 24 per cent persons were making use of the only mini-bank and one commercial bank in the village The major reasons for not borrowing from the mini-bank or commercial bank were the requirements of security and the consequences, if loans are not returned in time A comparison of money borrowed in 1975-76 and 1976-77 showed that the indebtedness had decreased reflecting an improvement in the economic well-being of the people About 60 per cent households had no standing debt, 14 per cent households had a standing debt between Rs 300 to Rs 600 and about 24 per cent people had a standing debt of more than Rs 1000 A major part of the outstanding debt was for productive purposes

Reactions to Questions

Asked about the general price level during the last two years, about 64 per cent of the persons held the view that prices had increased, 24 per cent responded that prices decreased marginally and the rest 12 per cent replied that there was no change On asking whether their economic situation had improved during the last two years, about 64 per cent told that it had deteriorated, 25 per cent told that it had improved and 11 per cent found no change in their economic well- being

A surprise find of the survey was that 71 per cent of the people in village had not even heard about the Five Year Plans Of the people who knew about it, only 47 per cent felt that planning is useful for the country 51 per cent said that there was really no programme for the development of the villages Most of the people felt that they were gaining very little from the Government agencies, if any, and complained that there was no arrangement for the cleanliness in the village 85 per cent expressed the view that they would like an increase in employment opportunities in the village itself and were against going to far off places for employment purposes unless compelled by economic circumstances ☐

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Books

Growth Calculus of the Bean Stalk

Functioning of the Life Insurance Corporation of India—An Appraisal *by Prof. B.S.R. Rao; Institute for Financial Management and Research, Madras,* 1976; *pp* XX+391; *Rs* 45.

THE L.I.C., as the foremost non-bank financial intermediary and an important constituent of the Indian capital market, has been performing the vital role of transforming savings into productive investment in the economy. This study covers the span of its existence during the last two decades under the stewardship of ten chairman through a stormy period of India's development when its message was sedulously spread amongst the income earners. By international comparisons of the compound rates of growth L.I.C.'s performance has not been too unsatisfactory. However, the study underlines the potential for growth in business that is available through various means of attracting the household sectors towards its new schemes tailored to the needs of policy-holders and serving their needs

The introduction coupled with an excellent review, supported by facts and figures, conducts the reader to the core of the study dealing with a critical assessment of the functioning of the organisation in Chapter three. This is followed by a study of its investment patterns and the summing up. The virtues of nationalisation are not overstressed in the study. However, far from resorting to impressionistic appraisals, the author's painstaking analysis of the shortcomings have been buttressed by the Director, IFMR by policy suggestions for improvement that are compelling in their viability and focus on urgency.

The author finds the rise of per capita life insurance in India from Rs 34 at the end of 1957 to Rs. 220 at the end of March 1975 as having belied the expectations after the nationalisation of life business. As stated already, the compound growth rate of 13.6 per cent per annum during 1957–75 is considered inadequate. Group business remains to make rapid headway. The life insurance carrying capacity of the country remains to be fully exploited through the strengthening of the zonal offices. The relative levels of the educational levels of the strata of households, income levels etc., have a great deal to do with the differential lags highlighted by the study in regard to the performance of the zonal offices, the lag is procuration of new life business and the average sum assured per policy zone-wise as against the all-India average. The reasons for the great popularity of endowment assurances vis-a-vis whole life policies have also a certain economic significance that requires to be fully explained in our socio-economic context This has not been the forte of the LIC policy makers so far.

The author has carefully analysed the main chinks in the LIC's armour. Too high overall and renewal expense top heavy administration, a hig lapse ratio, delays in the dispos of claims, rigidities in the premiu rates etc., albeit discussed in genera have been given rationale and sub stance by the author through em pirical exercises. There is, indeed scope for repeating them in crucia areas and expanding operations o new lines preceded by the adoptio of financial analysis and managemen and tempered by qualitative charac teristics of the policy-holders.

Similarly, the analysis of the invest ment patterns in Government secu rities, loan operations particularl their dwindling tendency towards th private sector, deliberate choice o schemes of social and public impor tance e g housing, the need to ste up the yield on investment, under writing operations, the restraint placed by the Government on the and their consequences etc., hav received adequate treatment in th book.

The book is of considerable valu for specialists of Indian Finance policy-makers and to all those con cerned who are eager to grasp th significant strides taken by a natio nalised institution firmly weatherin many storms and sailing toward the goal of our full development Both the author and the authoritie of the IFMR, Madras, deserv special thanks for this worthy con tribution to advance systemati thought in this field

—B.N. Nai

Public Finance

Indian Public Finance and Financial Administration *by K P.M. Sundharam and E N Sundharam; published by Sultan Chand and Sons, New Delhi, Sixth edition,* 1976; *Pages* 384; *Price Rs* 14.

EVER SINCE the first edition of this book was published in March, 1972, this book seems to have become quite popular for it is now in its sixth edition. The book is primarily meant for undergraduate students of Indian universities. In its two separate parts, the book deals with the various facets of public finance both in theory and in practice. The first part contains 14 chapters while there are 10 chapters in the second part

The authors have usefully updated the economic data of the applied part of public finance. Among the important topics discus sed are the budgets of the govern ment, centre-state financial relations public sector enterprises and finan cing of five year plans However it would have been better if th authors had also given the sourc of their data which is conspicuou by its absence in many of the quan titative tables contained in the book

There is an important chapte on agricultural taxation in India It elaborately deals with the K.N Raj Committee proposals for addi tional taxation on agriculture. I also makes a critical assessment o the said proposals.

. All in all, the book will prov useful for students of economic and commerce and will meet thei need for undergraduate examinations

Navin Chandra Josh

Financial Planning and Development

Financing Economic Development: *by A.P. Thirlwall: Published by the Macmillan Press Ltd, London and Basingstoke: Pages 95; Price Not mentioned*

ECONOMIC DEVELOPMENT is the most important goal of the economic and political policies of the majority of governments of the less developed countries of the present day world. To achieve this objective the chief instrument selected by many such countries is economic planning. Finance is the most essential aspect of planning for economic development. Whatever be the size of plan, it can be successfully implemented only when adequate financial resources become readily available as per needs of the plan. But, capital deficiency is one of the major problems which many of the developing and less developed countries face. It is necessary, therefore to pay due attention to the aspect of financing development plans.

There are various sources from which resources can be raised to execute the programmes incorporated in the plans. Some of them are internal and some external. In the book under review, an attempt has been made by the author to present the main analytical models that economists use in discussing finance for the development of developing countries'. Measurement of resource requirements has been given in the first chapter, with special emphasis on the dual-gap analysis. The subsequent chapter deal with raising of finances from domestic sources, through trade and from external sources.

While discussing financing of development from internal sources in the second chapter, three main approaches, the classical approach, the Keynesian approach and the Quantity theory approach were considered. In the third chapter, while considering the aspect of financing development through trade such aspects as 'grains from trade', 'the relation between exports and saving and export-oriented growth' were discussed in separate sections. Similarly, while analysing the problems of financing economic development through external sources in the next chapter, models of capital imports and growth were considered together with such topics as 'the measurement of aid component of international assistance' and other related aspects. In addition, a good account of the potential role of Special Drawing Rights in financing development has also been given.

As the author himself admitted in the preface, the book makes no pretence to be original. However, the ways in which it outlines the major issues in the field of financing economic development is quite impressive and interesting

A. Tirupathi Raju

Personnel Management and Human Relations

The Spectrum of Industrial Relations *by Bagaram Tulpule, Indian Institute of Personal Management, Durgapur* 1975; *Pages VIII* +70; *Price Rs* 15

BUDDING TECHNOCRATS generally find themselves ill-equipped for the task of personnel administration, despite their bookish knowledge. They find a yawning gap between the management of machines and the management of men. It is this gap which, the book under review tries to fill. Its scope is the whole gamut of personnel management beginning from the origin and browth of trade unionism to the shape of things to come in industrial relations

The fact of strained industrial relations is regarded as a part of life in industrial situations. The author, a trade unionist-cum-executive gives an inside view of the problems of labour and management. His approach to the problems is paragmatic, simplistic and unbiased

After introductory observations the nature of industrial relations is examined the predisposition of the parties which give a kind of 'Charge' to the field in which labour and management have to regulate their relationships, the patterns and basic dynamics of industrial conflict, are some of them

Since trade unions play a crucial role, the author dwells into the history of trade union to explain the validity of their existence. He contends that so long as there is conflict of interest, there will be need for adjustment of interest. And since, trade unions thrive on demands, the management can meet them within certain limits leaving scope for discontent.

A disturbing factor in industrial relations, which according to the author should not be glossed over, is the presence of economic gap between management and labour. To the labour this gap is a sign of social inequity and he will always fight to narrow down this gap.

Hopefully they are entering into a new era of conciliation. Trade union movements nowadays advocate the socialistic ideology. They have started talking less of wage increases and more of participation in management, equal rights, better housing, etc

Finally, the author has a word of advice for the aspiring technocrats: inculcation of ethical principles in industrial relations. "Human relations can work, if it is really, an objective or a philosophy that you accept, a personality style that you have developed within yourselt basically out of a deep sympathy for fellow humans whether they work above you or below you in the hierarchy".

—R. Muralidhar

FRUIT TREES IN ARID REGIONS

A large area in our country can be classified as arid. With poor or no rainfall and lack of irrigation facilities—what with high temperatures prevailing field crops are not practical or promising in these regions. Planting of fruit trees by *in situ* method can be made use of to solve this problem to some extent. *In situ* planning means raising a plant at the site where it is intended to grow in to a tree.

R.G. Maiti

STUDIES ON THE root system of dicot trees show that the tap-root grows down into the earth and is, therefore, capable of drawing moisture from deep layers of the soil, while branch roots and advantitious roots mostly grow near the surface of the soil which is readily subjected to drying. Thus plants with tap-roots are better adopted to drought conditions than those with superficial root system Tap root system also gives greater anchorage to the plant against wind.

As a rule, fruit plants are first raised in the nursery and then transplanted to the orchard. During this process the tap-root of the plant is damaged. Such plants, therefore, thrive by developing their branch-root system.

In arid regions where the rainfall is less and evaporation is greater due to higher temperature and drier atmosphere, while irrigation facilities are limited, a plant with tap-root system is preferred. Such a plant can be obtained by planting the seed where the tree is to grow. Since the seedling tree is not likely to be true to its mother, and often inferior to it, it is necessary to change the shoot system of this seedling by budding or grafting it *in situ*.

There are certain fruits which are specially adopted to the arid regions. Mention may be made of pomegranate, ber, guava, fig, mulberry, bel, custard apple etc. in this group. Budding is successful on most of them. Mango and malta may be tried under more favourable conditions. Mango may be worked upon by chip-budding and veneer grafting and malta by T-budding. Even for grapes budding *in situ* should be preferred to cuttings.

In all the above cases rootstocks should be raised from the seeds of inferior varieties or species which are hardy and capable of growing vigorously in conditions under question. For windbreak and hedge of the orchard *jamun* and *karonda* should respectively be used. The two plants are to be grown from seed without any budding or grafting operation

The most important thing for *in situ* planting is the digging of pits Never a planting pit should be less than a metre both in depth and width. There should not be a solid stone direclly underneath it. The pit should be filled up with soil impregnated with at least 30 kg of cowdung manure or farmyard manure. For hedge a trench—one metre wide and one metre deep—should be dug and manured @30 kg. of the above manures per running metre. Any departure from the above recommendations may mean failure for the orchard.

All preparations should be completed of the rainy season. When the soil of the pit settles down after a few showers sowing of seed should be done after levelling it properly. Soon after germination the tap-root will penetrate downwards and reach the bottom of the pit before the coming winter. A little watering may be necessary in the following summer. Afterwards the plant will grow of its own. Changing operation of the shoot should be done at the appropriate time. Regular manuring should be done during the rainy season where irrigation is not available.

In situ is an important method of fruit growing in the arid regions. This method can be successfully followed in sloppy grounds also. This method not only cuts down the cost of irrigating the orchard, but it also makes orcharding possible in areas where irrigation facilities are limited. In Orissa and some other states this method is being exploited successfully. ☐

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Why Children Suck Thumbs

FEW PARENTS today worry too much if a child sucks its thumb: medical opinion has swung away from the belief that the habit is evidence of the child's insecurity or that it will cause permanent distortion of the teeth. Yet there is still much argument about whether thumb-sucking is normal. A recent research report from Turkey offers a simple explanation that conforms with common experience.

Two Turkish psychiatrists set out to identify any differences between thumb-sucking children and those who never or hardly ever suck their thumbs or fingers. More than 600 children aged between one and seven and their mothers were examined.

The children who sucked their thumbs had in general stopped breast-feeding several months earlier than the others. The thumb-suckers were more likely to have been fed on a regular schedule rather than on demand and they came more often from educated families.

The most striking difference, however, was in the mother's routine for getting the child to sleep at night. When the mothers stayed with their babies, singing to them, rocking them or continuing to offer the breast or a bottle until the child went to sleep, the children hardly ever sucked their thumbs as they grew older. In contrast the usual pattern with the thumb-sucking children was that the mothers left their rooms after putting them to bed leaving them to go to sleep alone.

Turkish psychiatrists believe that sucking is a reflex activity that occurs during light sleep or at the time of going to sleep. If an infant is being fed by breast or bottle while falling asleep he is unlikely to form the habit of thumb-sucking and if he is being rocked in a cot or on his mother's lap the sucking instinct may be deterred.

In contrast children left alone without breast, bottle or dummy or other soothing stimuli will they argue develop the habit of thumb-sucking. Gradually they will extend it to other stresses, such as hunger and anxiety, and the habit may then persist throughout childhood.

—From "The Times, London"

Development Notes

Steel Export Board Soon

An export board is being formed for steel. The board will work out a strategy to maximise the foreign exchange earnings without affecting domestic availability. The board will include representatives of the government, main producers and re-rollers.

The export board will work out market strategy and co-ordinate the steel exports covering the total system of steel producers. At present domestic market has yet not been able to absorb fully the production of bars and rods from all the producers. Even if it picks up with the improvement in the construction activity, there is adequate production capacity in the country together with the mini steel plants to meet requirements of the domestic market fully.

Exports of bars and rods will improve the domestic markets and the mini steel plants will be in a position to market their production in a better manner.

The tube industry, with the assistance of the SAIL International, will also diversify their exports to markets in the US and the Continent which could not be explored earlier. The tube makers exported nearly two lakh tonnes in 1976–77.

Coal, Limestone Found in Assam

The recent exploration programme for coal and limestone in parts o Assam has established an estimated reserve of 1840 million tonnes of coal and 121 tonnes of limestone

The state's geology and mining department had taken up an exploration programme for coal in Jaipur-Dilli-Bimolapur belt (Dibrugarh and Sibsagar districts), Kollajan and Sheelvata coal deposits (Karbi Anglong district), and at Singrimari (Goalpara district). The department also carried out exploration in the limestone belts of North Cachar and Karbi Anglong districts.

Solar Power Sets

BHEL and Messerochmitt-Bolho-Blohm, Gumbh (MBB) of West Germany have signed an agreement to jointly develop a 17 Kw solar electric power generating set.

The set will use flat-plate medium temperature collector for collecting the solar energy. The heat will be used to vapourise an organic compound which will drive the prime mover. The prime mover, which is a screw expander and operates on the same concept as a screw compressor, used commonly in refrigerating machinery, will in turn drive the electric generator.

Handloom Development in M. P

The M.P. State Textile Corporation has launched an intensive handloom development project and a handloom cloth export scheme.

Under the Rs. 1.85 crore project, two thousand handlooms would be modernised every year and arrangements will be made to market the produce. In all 10,000 handlooms will be modernised in the next five years. More than 1500 handlooms have already started production with improved looms. The Corporation has opened offices at Raigarh Bilaspur, Raipur, Durg, Sounser, Waraseoni, Pandhana, Mandsaur and Khargone for successful implementation of the project.

The Corporation has also started production and sale of cheap 'Janta cloth'. The cheap cloth and the 'Janata Sari' are being produced in Bilaspur, Raipur, Chhindwara, Balaghat and Rajgarh districts of the State. The produce is being marketed through the cooperatives and consumers' stores. The Corporation has already sold 33,000 cheap 'Janta Saries' in the State.

FACT's Production Goes Up

The Fertilisers and Chemicals, Travancore Limited (FACT) has achieved new heights in production during the year ended March 1977.

Production in terms of nutrients for agriculture in the Udyogamandal Division as well as Cochin Division has been the highest achieved so far in any year, despite six week power cut during the year.

In Udyogamandal, nitrogen in the end products touched an all time high of 45,289 tonnes and P_2O_5 in finished products at 23,333 tonnes.

Among individual items, the annual production of phosphoric acid stood at 21,700 tonnes and ammonium phosphate at 98,000 tonnes wh were new records.

Higher production in Ud gamandal Division has a resulted in higher earnings workers in the form of prod tion bonus. Payments in t connection amounted to a cord figure of Rs. 13 lal during the year, which wo out to 7 per cent wages worker, every month.

FEDO to Build DDT Plant for HIL

FACT Engineering and Design Organisation (FEDO) has been selected by Hindustan Insecticides Ltd. for rendering consultancy and site management services for their 5,000 tonnes per year DDT project to be based on HIL's technology at Rasayani in Maharashtra.

Under the terms of this agreement FEDO will render technical services for the setting up of production facilities including civil works making technical DDT (5C tonnes/year), DDT formulat product (10,000 tonnes/yea effluent treatment and assoc ted off sites, township et

The project is estimat to cost about Rs. 82.5 milli with a foreign exchange co ponent of Rs. 0.60 millic By the setting up of this pı ject the saving in forei exchange for the country estimated at Rs. 84 millio

Irrigation Canals for Doon Valley Planned

The Uttar Pradesh irrigation department is considering the proposal to construct 72 km of canals in the Doon Valley involving an expenditure of about Rs. 1 77 crores When complete, these canals will bring an additional area of 4,200 acres under irrigation. It is expected that the additional irrigation facilities will help increase foodgrain production by 36,000 quintals. There has been marked improvement in irrigation facilities by repair and maintenance of the existing canal system in the Doon Valley. Repairs during the last financial year at a cost of Rs. lakh had enhanced the wat discharge in the canals 15 cusecs, thus bringing additional area of 1,500 ac under irrigation which shou increase the production foodgrain by 4,000 quint in the rabi and kharif cro For obtaining 15 cusecs water a sum of Rs 24 cror would be required if new cana are built When the Lakhw multi-purpose dam on t Yamuna is completed by 19 water discharge in the feed canals, particularly the Ka Pathar canal, will rise treme dously

IDPL Bags Afghan Orders

Indian Drugs and Pharmaceuticals Limited is likely to bag an export order worth Rs. 1 4 crores for its drugs from Afghanistan IDPL, has already secured an export order worth Rs. 60 lakhs from Afghanistan, the Soviet Union and other countries for its formulations, drugs and instruments Besides, it has entered into an agreement with SCDIMA, an Arab multinational company, under which Indian technical know-how will be provided for setting up drug and pharmaceuticals plants in 13 countries of the Arab world

In the field of import substitution too, IDPL has done well, IDPL has achieved tec nological self-sufficiency in of the 34 essential drugs manufactures. With the con pletion of its Rs. 56 cro expansion programme for th production of bulk drugs an formulation by the end of th Fifth Plan IDPL will hav achieved self-sufficiency in re pect of drugs in its range c productionn. Besides expan ding production facilities a its Hyderabad plant fron the present 1,700 tonnes t 3,387 tonnes and doubling ant biotics production at the Rishi kesh plant, IDPL is also settin up two new plants at Muzaff arpur in Bihar and Gurgao in Haryana

Fertilisers On Credit For Farmers

Chemical fertilisers will be supplied on credit to farmers in Jammu and Kashmir during the current kharif.

The facility will not, however, be available to those who have defaulted in the repayment of fertiliser loans ad vanced to them during th last two years or to those wh have such credit facilities avai lable by virtue of being mem bers of one or more coopera tive institutions.

CIL Designs Smokeless Appliances

Coal India Ltd has designed industrial and domestic appliances for checking air pollution It has also evolved smokeless domestic fuel using middlings and low grade coal CIL has also produced a prototype of chulla (oven) and burner which would eliminate smoke. The CIL proposes to entrust the manufacture of chulla to young entrepreneurs in various states. The cost of chulla would not exceed Rs 15, it is hoped it would be popular in western region of the country which was pollution conscious. It would be acceptable particularly among the low income group of people who would save as much as 50 per cent on fuel

In order to meet the requirement of urban population, CIL had started manufacturing smokeless domestic fuel Such efforts would help CIL to convert large stocks of middlings and low grade of slack coal into domestic fuel It has also taken lead in undertaking the manufacture of stokers, arresters and forced draught arrangement in their Korba workshop on an experimental basis

During the current year CIL will ensure availability of coal for domestic use and cotton industries by encouraging distribution through co-operative and retailers as far as possible

Punjab To Develop Fisheries

A sum of Rs 30 lakh is proposed to be spent by the Fisheries Department of Punjab during the current financial year to promote pisciculture in the state This would be around Rs 3 lakh more than the amount spent in 1976-77

There are nearly 3100 hectares of water area in the village ponds and tanks of Punjab, which could be utilised for promoting pisciculture At present only 500 hectares of water area have been stocked For stocking and restocking these 500 water hectares, nearly 50 lakh fish-seeds are required, of which, the department was able to secure only 5 6 lakh

Shortage of fish-seeds is the main problem faced by the state To remedy this, it is proposed to set up fish-seed farms in almost every district Such farms have already been set up in Raja Sansi (Amritsar), Hayatnagar (Gurdaspur), Bir Shikargarh (Kapurthala), Bir Dosanjh (Patiala), and at the Punjab Agriculture University in Ludhiana

Record Output By Public Sector Projects

The nine public sector undertakings under the Department of Industrial Development reported a total profit of Rs 4 56 crore during the financial year 1976-77 According to official figures, the total production of these undertakings during the period touched a record level of Rs 122 70 crore against the target of Rs 125 43 crore, an achievement of 97 82 per cent of the annual target Two undertakings —Hindustan Photo Films and Instrumentation Limited -exceeded their annual targets while four undertakings achieved more than 90 per cent of their target They were National Instruments Limited (98 7), Nepa Mills (96 23), Hindustan Cables Limited (95 97) and Cement Corporation of India (94 73)

The Tannery and Footwear Corporation, however, achieved only 84 42 per cent of the target and the Hindustan Paper Corporation 67 53 per cent During 1976 77 the total sales of these nine undertakings amounted to Rs 124 95 crore against the target of Rs. 127 49 crore They exported goods worth Rs 2 4 crore while the target was Rs 2 9 crore In March this year, the production in the units was Rs 11 8 crore against the target of Rs 11 27 crore indicating an achievement of 104 6 per cent of the target This was 7 68 per cent higher than the production of about Rs. 10 9 crore in March last year

Rock Phosphate Production Increases

The production of rock phosphate in Andhra Pradesh is picking up with the commencement of mining operations by the public sector Pyrites, Phosphates and Chemicals Limited. Rock phosphate is available in Kasipatnam tribal area of Visakhapatnam district in Andhra Pradesh It is not exploited to the desired extent owing to the absence of infrastructure facilities such as roads, electric power supply and mechanisation of mining operations

According to rough estimates, about one million tonnes of rock phosphate of high grade with over 35 per cent P205 content is available at Kasipatnam. The present production of this rock is around 8,000 tonnes per year —mostly by private enterpreneurs. The public sector Pyrites, Phosphates and Chemicals Limited which took up mining operations since 1976 is producing about 2,000 tonnes per annum. Large scale exploitation of rock phosphate, in view of its importance is becoming uneconomical owing to non-development of infrastructure facilities which contribute to high cost of production

India, every year imports between 8 to 10 lakh tonnes of rock phosphate from Jordon, Morocco, Senegal, Tunisia and the U S The indigenous production, placed at around 5 lakh tonnes, per year sufficient to meet only 50 per cent demand of the phosphatic fertiliser producing units, is mostly from Rajasthan. A major part of import of rock phosphate by the local Coromandel fertiliser factory can be met by Kasipatnam mines, if systematic efforts are made to exploit the mines here by providing infrastructure facilities. Coromandel fertilisers in Visakhapatnam imports about 3 lakh tonnes of rock phosphate per year. The demand for rock phosphate may rise rapidly in view of increased production of phosphatic fertilisers by the fertiliser units in the country following increased consumption as a result of cut in prices of phosphatic fertilisers.

Tropo Link With Moscow

The establishment of a troposcatter link between the Soviet Union and India, envisaged in the agreement signed between the two countries recently in New Delhi, will be a unique system of communication

The link makes use of the troposphere, which is the lower portion of the atmosphere, to send the signals It also takes advantage of two high mountain peaks to diffract the signals The present method of operating telecommunication services between India and the Soviet Union through the normal radio links suffers from inherent limitation of capacity and quality due to disturbances in the ionosphere

This project, which will be implemented by the Overseas Communications Services of the Ministry of Communications, will have two terminal stations for this link One at Srinagar in India and the other at Tashkent in USSR. The link will have 12 channels initially to be expanded to 24 channels later on. It will provide large capacity and reliable communication facilities between the two countries

The estimated cost of the project for the Indian station is Rs 3 9 crores with a foreign exchange component of Rs. 92 lakh. While most of the equipment will be made in India, certain specialised sub-systems of equipment will be imported from the Soviet Union

Synthetic Textiles Export Exceeds Target

Exports of Rayon & Synthetic Textiles reached an all-time high of Rs 38 52 crores during the year 1976–77 This performance is not only more than double of that achieved last year which was Rs 17 79 crores but has exceeded the export target for the year 1976 77 by over Rs 1 00 crore Exports during 1976 77 represent 117 per cent rise as compared with the achievement of the previous year

Fabrics which constitute a major share of exports of rayon and synthetic textiles were valued at Rs 31 5 crores, hosiery and knitwear Rs 1 2 crores, and miscellaneous items including rayon Yarn, etc Rs 3 36 crores The Silk & Rayon Textiles Export Promotion Council expects a substantial increase in export business in the current year and accordingly, has set a target of Rs 60 00 crores. In order to achieve this target the Council has chalked out a programme in which visits by foreign trade delegations and tours of Indian Study and Sales Teams figure prominently.

ITI Gets More Export Orders

The state-owned Indian Telephone Industries exported equipment worth Rs 1 70 crore during 1976 77. ITI has now export orders worth about Rs 3 23 crore The company has entered the Omani market in a big way securing a Rs. 20 million order for the supply of materials and installation of 3,000 telephone lines.

As regards production the ITI produced equipment worth Rs 83 06 crore during 1976-77 against a target of Rs. 80.62 crore.

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davp 77/71

Printed at Universal Advertisers E/2, Jhandewalan Extn, New Delhi-110055 and Published by the Director, Publications Division Patiala House New Delhi-110001

80 Paise

BUDGET

Success Stories

THEY DID IT

Disang Rangchual Gaon with about ten villages around it under Jaipur Block in the Dibrugarh sub division is a back-ward area particularly in relation to communication and rural sanitation. The population of the area is about fifteen thousand comprising plains tribals and other backward classes. The people so long had either to go on foot a distance of more than fifteen kilometres to the nearest health centre at Naharani to get medical aid or surrender to their fates to avoid all such irksome journey. But as lotus grows on mud a noble idea came to the mind of these backward people. They took decision to have a health centre of their own, contributed according to their individual capacity, collected about rupees twenty two thousand (Rs 22,000) in cash beside a plot donated by one of the generous co-villagers. Then came siamdan from the members of the local mahila samities Yuvak Kendras and the students as well. The beautiful three roomed building with a specious verandah and a staff quarter came up as "Disang Rangchual Rural Health Sub-Centre" With the ceremonial opening and formally taking over of the centre by Assam Government recently the face of the area has changed and a pride of success could be observed in their smiles on the auspicious opening day.

N.C. SARMA
Field Publicity Officer
Dibrugarh

Accent on Youth

The Rural Citizens' Forum at Vattipparampu in Erattapatti Block area (Kottayam District) set up under the auspices of the Kottayam field publicity unit has made significant progress in utilising youth power for constructive purposes The Forum which has 37 active members most of these are educated. but unemployed men—contributed one third of the voluntary labour required for the construction of a public well Starting with this work the Rural Citizens' Forum constructed houses for two poor settlers at Vettipparambu They collected money and paid it to a Harijan settler for the construction of his house and another harijan settler was given a small plot. The dynamic young men of the Forum broadened and repaired about one kilometre stretch or road linking Poonjar to Vettipparambu. Carried out under the Food for Work scheme, the work done of this road was worth about Rs 17000 During the observance of Community Development Week the Forum was able to construct a small house for a homeless settler At present the members of the Forum have taken up the work of constructing several rural roads in the area

S.V MENON
Field Publicity Officer
Kottayam

Bank Helps Coir Worker

Veerappan aged 43 years is a har working man employed in rop making industry at Karumbupat hamlet in Balasamuthiram villag in Palani Taluk of Madurai Distric He found it very difficult to make bot ends as meet his family consists c six members inluding his parents H came to know that State Bank India, Palani is giving loan at nomin rate of interest to the weaker sectior of society He approached the Ban Manager six months ago and got loan of Rs. 750/-

With the money thus obtained, h purchased raw materials like cocont fibre etc As the entire family engaged in this industry, he is abl to produce ropes worth Rs 500 every month He gets a net prof of Rs 100/- a month. He has tw sons and both of them are studyin in a school His intention is t educate the children upto colleg level

R. RAVICHANDRAI
Field Publicity Offic
Madur

YOJANA

Volume XXI Number 11
New Delhi
1 July 1977
10 Ashad, 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Y o j a n a seeks to carry the message of the Plan, but is not restricted to expressing the official point of view

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Editorial Office : Yojana Bhavan, Parliament Street, New Delhi-110001. **Telegraphic Address :** Yojana, New Delhi, **Telephones :** 383655, 387910, 385481, extensions 402 and 420, **Circulation :** Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription ; Annual—Rs. 18, Two years—Rs. 30. Three years—Rs. 42, **Foreign Subscriptions :** One year—£2.70 or $5.50. Two Years—£4.50 or $9.00. Three Years—£6.30 or $12.50 Single copy—twelve pennies or $0.25.

EDITORIAL

BUDGET FOR A NEW ERA

Perhaps no other presentation of Union budget in the last 30 years evinced so much expectation and so much anxiety as the one this year The Union Finance Minister Shri Patel was confronted with the task of containing of inflation and implementing the promises of the Janata Party. He has very rightly chosen stuk to that line and not come out with the wide range of reliefs in taxation, direct or indirect assiduosly sought by businessmen, workers, employees, traders and professionals including urban tax-payers. Shri Patel has reduced the budgetary gap to Rs. 72 crores only even after a substantial increase in the developmental outlays. In the same way, while the minimum income tax unit in case of individual has been raised to Rs. 10,000 which will benefit about 8.2 lakh income-tax payers, pressure on higher income earners has been much more than what was expected. This has been done by restoration of the surcharge on income-tax at the rate of 15 per cent, continuation of the compulsory deposit for another two years and raising of wealth tax (though not very much).

The Finance Minister has also exempted the Corporate Sector from the incidence of increased surcharge but has made purposive the scheme of investment allowance which was already in operation. This scheme has been further liberalised to bring within its scope all industries except the industries which are in low priority sectors. With an eye on self-reliance, a liberal investment allowance of 35 per cent has been allowed on machinery and plant installed for the manufacture of any article with newly developed domestic know-how.

The allocation of Rs. 3054 crores for agriculture and related sectors like irrigation, fertilizer and power, which constitute 30 per cent of the entire plan outlay is unique. Besides this Rs 40 crores have been alloted to roads, building and drinking water in in the country

The continuation of Compulsory Deposits Scheme for another two years and the enhanced excise duty on branded bidi' has not been well received by the people; but if the funds alloted are effectively utilised this budget will stimulate the economy and generate investment in areas hitherto neglected.

Highlights of the Union Budget-1976-77

The first Budget of the new Governmet seeking "to accelerate the pace of economic progress and to distribute its fruits equitably under a framework of democracy ond individual freedom" was presented by the Finance Minister, Shri H.M Patel, to the Parliament today.

In the Budget estimates of the currentyear, the total receipts are estimated at Rs 15,366 crores. Gross tax revenues at existing rates of taxation are estimated at Rs. 8,879 crores, showing an increase of Rs. 798 crores over the revised estimates for 1976-77.

Of this increase, Rs 101 crores will accrue to the States as their share of taxes. While Union excise duties are expected to yield Rs 4,550 crores showing an increase of Rs. 373 crores over the revised estimates for the last year, receipts from income and corporation taxes are estimated at Rs 2,258 crores, an increase of Rs 180 crores Customs receipts at Rs 1.734 crores will be higher by Rs. 243 crores as compared to last year

Market loans are expected t yield Rs 1,000 crores as compared to Rs 849 crores in the previous year. Besides, the Government propose to borrow Rs 800 crores against drawal of foreign exchange reserves Net external assistance after providing for repayments and interest payments is estimated at Rs 1,052 crores including disbursements against new credits

A provision of Rs. 5,790 crores has been made in the Central Budget for 1977-78 for the Central Plan and assistance towards Plans of States and Union Terriotories as compared to the last year's provision of Rs. 4,759 crores, thus maintaining the tempo of development.

Non-Plan Expenditure

To observe the utmost economy in expenditure, keeping in view the present Government's emphasis on austerity and avoidance of all forms of ostentation, detailed instructions have since been issued in this regard for strict compliance by Ministries and Departments The full impact of economy measures will be known only after the detailed exercises have been completed Certain areas of non-essential expenditure have already been identified and the Budget documents reflect the reduction of about Rs 130 crores to this expenditure as a result of this exercise

Deficit

Taking into account the expenditure both on Plan and non-Plan accounts and the estimated receipts at the existing levels of taxation, the Budget for the current year shows a deficit of Rs. 202 crores

In the estimates of non-Plan expenditure, the provision for Defence expenditure is Rs. 2,752 crores, Rs. 56 crores less than the provision made in the interim Budget. The provision for food subsidy and carrying cost of buffer stocks have been for the present retained at Rs 460 crores. This will, however, be reviewed on the basis of emerging trends during the course of the year.

The net interest liability of the deficit States, as recommended by the Sixth Finance Commission has been computed and a provision of Rs 72 crores has been made in the Budget for disbursement of additional grants-in-aid to the States concerned on this account, in relation to the three years ending March 31, 1977.

Relief For Pensioners

The Finance Minister said th he had received requests from Centr Government pensioners for a increase in the quantum of reli on their pensions in view the high cost of living He ha therefore, proposed a special reli at graded rates to them costing tl exchequer Rs 10 crores annually

Annual Plan

Regarding the outlays on tl Annual Plan for 1977-78 the Finan Minister said that the Plan strateg has to be reappraised so that o economic ills could be overcon through a comprehensive reorderir of plan priorities The reconstitute Planning Commission would, r doubt, address itself to these task Meanwhile, the Government ha made a quick review in consultatic with the various Ministries and trie to impart "a new direction to o development programmes in lin with the priorities and objectives s out in the manifesto of the Janai Party". Despite serious limitatio in refashioning the Plan "accordir to our thinking", because of tl commitments already made, the roo for manoeuvrability was limite We were not writing on a clean slat he said Even so, appreciable savin have been effected and schemes c relatively low priority have bee suitably rephased.

The Finance Minister said th true to the promises made to tl people, in the recasting of the Pla provision has been made for additic nal outlays for agriculture, irrigatio power, khadi and village industrie sericulture, handlooms, postal an telephone facilities in rural are and wide ranging rural infra-structu programmes covering such schem as durable link roads and rural dri king water supply. It was his inte tion to step up the further outla next year on programmes designed t develop rural infrastructure faciliti so that over a period of about fi years, the basic needs of the enti rural population could be met.

Integrated Development

Emphasising the importance (

making integrated development of crop production, livestock, poultry, fisheries and forestry, the Finance Minister said that special emphasis will need to be laid on developing dairy industry on a co operative basis with a view to enabling milk producers to get better and fairer price. The production policy should be based on, modernisation of agriculture in which technology should, by far, be the most crucial input to make a sustained and high rate of growth possible The existing Plan provisions and priorities have been rephased for plugging gaps in developing and identifying potential areas to bring about further acceleration of the phase of agricultural growth. This will include strengthening rural infra-structure as the basis for future accelerated development, generation of employment in rural areas, special attention to the needs of the weaker sections of the society and giving fillip to the production of cotton, oilseeds and pulses so as to correct the supply and demand imbalances

Desert Development

A pilot project for desert development in Haryana, Gujarat and Rajasthan is being evolved and provision has been made for this purpose in the Budget estimates.

Irrigation

Rs 100 crores have been provided as Advance Plan Assistance to the States for irrigation projects The Plan outlays for minor irrigation will be supplemented to the extent of about Rs 260 crores fom the Agricultural Refinance and Development Corporation Rnd other lending institutions Under the programme

Agriculture Gets 30% of Total Plan Outlay

of rural electrification for energising the pump sets, a provision of Rs 175 crores has been made which will also be augmented to a significant extent by institutional finance

Agriculture

The total Plan outlay on agriculture and allied services, major, medium and minor irrigation projects and fertilisers, together, with provisions foi co-operatives and power sectors attributable to rural areas, works out to Rs 3,024 crores. This constitutes happily 30.4 per cent of the aggregate outlay of the Central, State and Union Territories Plans.

Rural Development

Regretting that the needs of the rural areas had been sadly neglected, the Finance Minister said that the Centre should take the initiative in promoting the construction of approach roads which constitute an essential ingredient of any programme for building up the infrastructure for rural development. It is, therefore, proposed to make a beginning with an outlay of Rs. 20 crores which, suitably supplemented with the resources of the State Governments and local bodies, would accelerate the programme in this vital area. The new scheme 'grain for work' could also be utilised imaginatively for this purpose

Drinking Water

Although the responsibility for finding resources and executing the programmes of rural drinking water supply is that of the State Governments, Shri Patel said that the central Government should also intervence actively and supplement the efforts of the States He has proposed to make an earnest start in the current year with an additional provision of Rs 40 crores over and above the existing outlays for this programme The allocations would be progressivvely stopped up to carry the benefits of the problem areas over a period of five years

The Finance Minister said that he was not satisfied with the programmes and allocation in respect of the welfare of Harijans, Adivasis and other less developed sections of the people Although these were largely in the States, Plans, it was his intention to take up these matters on a priority basis with the State Governments and Central Ministries concerned so as to add to the effime tiveness of thexe programmes

Power

For power development, a sum of Rs. 234 crores had been provided in the Central Plan. This included Rs. 33 crores for Singrauli Super Thermal Station, Rs. one crore for initiating action on a second Super Thermal Power Station, Rs. 17 crores for inter-State Transmission lines, and Rs 52 crores for nuclear power projects. The State and Union Territories Plans, which account for the bulk of the provision for power, envisage an outlay of Rs. 1,676 crores. Additionally, a sum of Rs. 20 crores is being provided to the Rural Electrification Corporation for systems improvement and for providing I.T. Capacitors for rural consumers, both designed to minimise loss of energy.

Oil Exploration

Emphasising the importance of self-sufficiency in energy, the Finance Minister said that the provision in the Plan for petroleum is being stepped up from Rs. 485 crores last year to Rs. 677 crore this year. Of this, Rs 451 crores will go to the Oil and Natural Gas Commission for their on-shore exploration programmes and for accelerating the pace of off-shore exploration. Recently, a scheme for development of oil and natural gas resources of Bombay High and Bassein fields had been cleared. Indigenous production of crude oil is expected to reach 11.31 million tonnes in 1977-78 against 8.89 million tonnes last year.

A special provision of Rs. 5 crores has been made for Neyveli Lignite Corporation for a new lignite-based power plant with a capacity of 200 MW in view of the difficult power situation in Tamil Nadu. The budgetary allocation for transport and communications will be Rs. 651 crores of which Rs. 302 crores will be for the Railways which have a Plan outlay of Rs. 480 crores

An additional outlay of Rs. 10 crores has been provided for opening more post offices and extension of telephone and telegraph facilities in rural areas The Khadi and village industries, which if properly organised and supported, were capable of generating employment on a large scale A provision of Rs. 35 crores has been made for these in the Plan More funds will be allocated if required These schemes are expected to provide employment for about 25 lakh persons An outlay of Rs 20 crores has been provided for handloom and Rs. 4 crores foi sericulture, which is a substantial step up over the last year

Shri Patel told Parliament that because of shortage of time as also because of heavy commitments of expenditure on ongoing projects, it had not been possible for him to recast the entire fiscal structure in line with "our declared priorities". Also, he did not have the benefit of consultations with the Planning Commission which had been reconstituted recently. It had also not been practicable for him to consult State Governments and induce them to reorient their development programmes in accordance with the priorities

THE Finance Minister, Shri H M. Patel, has proposed to provide that no income-tax shall be payable by individuals and Hindu undivided families whose taxable income does not exceed Rs. 10,000. However, the nil rate slab of income is being retained at Rs. 8,000. Hence, where the taxable income exceeds Rs 10,000, the excess over Rs. 8,000 will be charged to tax as at present subject to the grant of marginal relief in cases where the taxable income exceeds Rs 10,000 by a small margin.

For stimulating industrial development and economic growth, the ges in the rates applicable to Hindu undivided families having one or more members with net wealth exceeding Rs. 1 lakh. The new rate schedule will come into force from the current assessment year and will thus supersede the earlier changes in the rate schedule. This will bring in an additional revenue of about Rs 10 crores in 1977-78.

Compulsory Deposit Scheme

The Compulsory Deposit Scheme in its application to additional dearness allowance was dispensed with from May 6, 1977 However, in mination of the fair market value of a capital asset with reference to a date more than 23 years ago presents practical difficulties, and also capital gains arising from the transfer of asset held over a length of time in a world of rapid and continuing imflation is to a great extent illusory in nature. It is therefore proposed to advance the notional date by ten years, i.e. to 1st January 1964.

In regard to capital gains tax on the sale of residential house it is proposed to exempt the capital gains from tax after the sale proceeds of any asset are reinvested within six

Plan Priorities to be reordered

Finance Minister has widened the scope of the scheme of investment allowance introduced last year. He has proposed to extend the scope of investment allowance to all industries except those which are engaged in the manufacture of specified low priority items such as cigarettes, cosmetics and alcohlic beverages

Presenting his first Budget to the Parliament today, Shri Patel said that his proposals for direct taxes were designed to increase corporate savings, channel more funds into productive investment, accelerate the pace of industrial growth and, at the same time, strengthen the redistributive role that direct taxes must be made to play.

In regard to the proposal for indirect taxes, the Finance Minister said that he had endeavoured to ensure that those proposals did not impinge on the necessities of life. He had sought to raise resources mainly from the less essential or luxury items, while giving relief to some deserving sectors, and simplifying and rationalising the central excise tariff structure generally.

Wealth Tax

The Finance Minister has proposed to raise the rates of wealth tax The existing rate of ½% will continue unchanged on the first Rs 2 5 lakhs of net wealth, but for the higher slabs there will be an increase of ½% over the existing rates while in the highest slab of Rs 15 lakhs, the new rate will be 3½%, i.e. an increase of 1% over the existing rate.

There will be corresponding chan- view of the state of the economy, and the inflationary pressures that exist, it is proposed to continue the compulsory deposit scheme for income tax payers for another two years.

Scientific & Technological Self-Reliance

With a iew to providing an incentive to the users of technical know-how developed in the country, it is proposed to grant investment allowance at the higher rate of 35% on machinery and plant installed for the manufacture of any article made in accordance with the know-how developed in Government laboratories, public sector companies and universities

The closely-held industrial companies are proposed to be exempted from the requirement of compulsory distribution of dividends.

Capital Gains Tax

The Finance Minister has proposed certain changes in the existing scheme of capital gains taxation. At present capital gains arising from the transfer of a capital asset held by a tax payer for a period exceeding 60 months alone are entitled to concessional tax treatment With a view to improving mobility it is proposed to reduce the holding period to 36 months.

In respect of capital assets acquired prior to the 1st January, 1954, a tax-payer has the option of adopting the fair market value of the asset on January 1, 1954 in place of the actual cost of acquisition. Deter- months in shares, bank deposits, units of the Unit Trust or other preferred assets. In order to prevent abuse of this concession, it is required that the assets in which the sale proceeds have been reinvested are held for a period of not less than three years.

Sick Mills

Expressing himself against the take over of sick industrial undertakings by the Government, the Finance Minister has proposed to facilitate voluntary amalgamation of sick industrial units with sound ones by providing certain incentives and by removing impediments in the way of such amalgamation. He has proposed to provide that where an amalgamation is accepted by the Government to be in public interest, the accumulated losses and unabsorbed depreciation of the amalgamating company will be allowed to be carried forward and set off in the hands of the amalgamated company.

Tax Concessions

Expenditure incurred by companies on approved programmes of rural development will be allowed to be deducted in computing taxable profits It is also proposed to accord preferential tax treatment to small scale industries which are set up in rural areas and which begin their manufacturing activity after June 30, 1977. Such industrial undertakings will be entitled to a deduction in the computation of their taxable profits of an amount equal to 20% of the profits. The concession will be avai-

Greater Stress On Integrated Rural Development

lable for each of the ten years commencing from the year in which the undertaking begins its manufacturing activities

The Finance Minister has withdrawn the option given to the companies last year according to which, instead of paying 5% surcharge on income tax, they could deposit an equivalent amount with the Industrial Development Bank of India for a period of five years. This will provide additional tax receipt of Rs 56 crores

The monetary ceiling on donations for charitable purposes qualifying tax exemption has been raised from Rs 2 lakhs to Rs 5 lakhs

The scope of the concession under which 50% of the remuneration received by Indian technicians from a foreign Government or a foreign enterprise for services rendered outside India was exempt from income tax, is now proposed to be enlarged to cover Indian technicians employed by Indian concerns in any branch or office outside India

etc with an annual income up to Rs 10,000. The overall effect of all direct tax proposals would bring a revenue of Rs. 92 crores in the current year.

Duty on Motor Vehicles up

The excise duty on motor vehicles is being raised The rate of duty on motor cars is to go up by 2-1/2 per cent to 17-1/2 per cent. Similarly, the rate of duty on two-wheelers and three-wheeler motor vehicles is proposed to be raised from 9 per cent to 12-1/2 per cent Since it is simultaneously proposed to exempt from excise duty tyres, tubes and batteries supplied as original equipment, the net increase in duty for the two and three wheelers will be about 2-1/4 per cent. These changes will yield a net revenue of Rs 5 1 crores annually.

The present specific rates of duty on pigments, paints, enamels, varnishes, etc are proposed to be replaced by *ad valorem* rates. These are being so adjusted that the duty

acetylene gas. Small scale manufacturers of hand tools and small tols, electric light fittings and polishes, will, however, be exempted in respect of their production up to Rs. 1 lakh. These levies are expected to yield a revenue of Rs 11 crores in a year.

A one per cent general excise duty levied on commodities which did not attract excise duties under any specific heads is now proposed to be raised to 2 per cent. In order to minimise the cascading effect, a set off will be given where these goods go into the manufacture of other goods that are themselves excisable. Since a large number of small units producing a variety of goods fall under this head, it is proposed that no duty will be levied on any unit whose annual turnover does not exceed Rs 30 lakhs. This will replace the existing exemption based on the number of workers. All non-power operated units will also be exempt.

Concession to Handloom

Handloom and powerloom sectors

Defence Expenditure less by Rs. 56 crores. Additional Rs. 40 crores for drinking water for Villages. Crude Oil Out Put Expected to reach 11.31 million tonnes.

While not making any changes in the basic rates of income tax, the Finance Minister has proposed to increase the rate of surcharge on income-tax in the case of all categories of tax-payers, except companies, from 10 per cent to 15 per cent. With the increase in the rate of surcharge, the maximum marginal rate of personal income tax will now be 69 per cent as against 66 per cent at present.

For avoiding inconvenience to small investors in joint stock companies, particularly the investors from rural areas, the requirement of deduction of tax at source will be waived in cases where the dividend paid does not exceed Rs. 250.

Rs. 92-Crore Gain From Direct Taxes

The Finance Minister said that he had taken credit for increasing the surcharge on income-tax and increasing the rates of wealth tax. He had also taken note of the loss of revenue involved in exempting individuals, Hindu undivided families,

on the high cost items will increase by about 5 per cent generally, but that on the cheaper items will remain more or less unchanged

The basis of taxing cinematograph films is proposed to be changed, adopting the value criterion, the revised duty being ten per cent *ad valorem*

At present, the rate of *ad valorem* duty on cigarettes increases as the value of cigarettes goes up The progression in the existing rates is now proposed to be raised In regard to branded bidis, it is proposed to raise the existing duty of rupee one per thousand to rupees two per thousand. These levies would bring in additional revenue of Rs 45 crores a year

A 10 per cent excise duty is proposed to be levied on (1) hand tools, and small tools not already excisable, (2) weighing machines and weigh bridges, (3) watches, clocks and timepieces, (4) electric light fittings, and (5) polishes for foot-wear, metals, cars etc. It is also proposed to levy an excise duty of 12 per cent on

benefit substantially from the Finance Minister's proposals regarding indirect taxation He has proposed to exempt cotton yarn in cross reel hanks up to 20s counts from the excise duty. It is also proposed to exempt cotton yarn of higher counts in cross reel hanks to the extent of 30 paise per kg. Similar concessions are proposed in respect of viscose spun yarn as the handloom sector is now consuming substantial quantities of this yarn.

The power loom sector is proposed to be exempted from the existing compounded excise duty. This will free about 80,000 power loom licensees from excise control

Handloom and power loom fabrics are also proposed to be exempted from excise duty if various types of processing such as stentering and mercerising are done without the aid of power. They are already exempt if bleaching, dyeing and printing are done without the use of power.

The duty on crimping yarn is proposed to be reduced from Rs.

10 per kg. ot Rs. 5 per kg.

Electronics

The basis for duty on electronic items which is now on a varying basis is proposed to be made uniformly on *ad-valorem* basis. The large manufacturers producing radios and transistor sets, tape-recorders, tape-recorder-cum-radios, stereos and hi-fi musical systems will pay duty varying from 15 per cent to 35 per cent *ad valorem* depending on the item and the ex-factory price.

The small manufacturer will be given a uniform concession of 15% *ad valorem* in the rate of duty, that is to say, the corresponding rates of duty that they will pay will vary from nil to 20%. In the case of TV sets the 5% concession rate of excise duty will henceforth be available only where the ex-factory cost of TV set with screen exceeding 35 centimeters is Rs. 1600 or less instead of the existing limit of Rs. 1800. For taperecorders there will be a concessional rate if the ex-factory price does not exceed Rs 500. For calculators, there will be a concessional rate if the ex-factory price does not exceed Rs 175.

To help small and cottage match manufacturing units, it is proposed to double the existing concession of 55 paise for a gross of match boxes to such of those units as are members of registered cooperative societies, or are certified as such by the Khadi and Village Industries Commissions. These units have a large employment potential. Electrical insulating tapes and slotted angles and confectionary articles such as boiled sweets, toffees, candies, are also proposed to be deleted from the list of specific items in the Central excise.

Mini steel plants are in difficulty and their position could be improved if they were provided with fresh melting scrap from the main steel plants without payment of excise duty. It is, therefore, proposed to exempt from excise duty identifiable types of fresh melting scrap cleared from the main steel plants as raw material for the mini steel plants.

Rationalisation

Collection of excise duty on woollen yarn from a number of small spinners has led to evasion and other malpractices. It is, therefore, proposed to replace the excise duty leviable on woollen yarn by an increase in the customs duty at the stage of import of raw wool, waste wool and rags. For wool tops it is proposed to reduce the present rate of excise duty of Rs. 10 per kg. to Rs. 5 per kg. and to make good the loss by increasing the import duty on raw wool suitably. These measures are expected to result in making fabrics using indigenous wool cheaper.

To make good the deficiency still remaining in the domestic demand for watches, it has been decided to allow the import of watches through Hindustan Machine Tools Ltd. To make indigenously manufactured watches and imported watches available to the public at reasonable prices, the Finance Minister has proposed to reduce the import duty on watch parts and watches from 120 per cent to 50 per cent ad valorem.

The import duty on newsprint is to be reduced from 5 per cent to 2-1/2 per cent ad valorem.

For stimulating industrial growth and to enhance the competitiveness of industry, it is proposed to allow the import of certain selected items of capital goods without prior scrutiny from the indigenous angle. At the same time, in order to enable the Indian capital goods industry to meet foreign competition more effectively, it is proposed to bring down the rate of import duty on copper wire bars used for the manufacture of certain larger sized electrical motors, generators and transformers from the existing level of 45 per cent plus Rs. 5,600 per tonne is 40 per cent ad valorem. Similarly, the rate of duty on cold rolled non-grain-oriented sheets, alloy steel, tool steel, special steel, and high carbon steel is also proposed to be brought down from 75 per cent to 40 per cent. Further, stainless steel plates, sheets and strips of 16 gauge and thicker which are used in the manufacture of capital goods and which are to day charged to 120 per cent or 320 per cent duty depending on the gauge, are proposed in future to be charged to 40 per cent duty only. Utensil grade stainless steel of 22 gauge and thinner, which today attracts a duty of 320 per cent, will be charged import duty at 120 per cent. Varying rates of duty are proposed to be fixed for the intervening gauges, taking into account the possibility of re-rolling imported products. It is estimated that the reduction in duties on these copper and steel items will mean a revenue sacrifice of the order of Rs. 36.25 crores at the existing level of imports.

The above proposals will yield Rs 130 crores in the current year thus reducing the deficit of Rs 202 crores to Rs 72 crores. This is a relatively small amount and is likely to have no inflationary effect. □

Provision For Food Subsidies Retained at Rs. 460 crores

Budget at a Glance

(Rupees in Crores)

	1976-77 Budget	1976-77 Revised	1977-78 Budget
REVENUE			
Receipts	8219	8507	9424 130*
Expenditure	7690	8554	9487
	+529	(—)47	64 (+)130*
CAPITAL			
Receipts	4423	5252	5942
Expenditure	5280	5630	6081
	(—) 857	(—) 378	(—) 139
TOTAL			
Receipts	12642	13759	15366 (+) 138*
Expenditure	12970	14184	15568
Overall Deficit	328	425	280 (—) 130*
Uncovered Deficit			72

*Effect of Budget proposals

Budget Estimate 1977-78

Receipts next year, net of States' shares of taxes and duties, are estimated at Rs. 15,496 crores, and expenditure at Rs. 15,568 crores, leaving a deficit of Rs 72 crores,

Gross Tax Revenue is estimated at Rs. 9021 crores. The States' share of taxes and duties will be Rs. 1802 crores

Thus, the net Tax Revenue of the Central Government will be Rs. 7219 crores comprising Union Excise Duties Rs. 3501 crores, Customs Rs 1730 crores, Corporation Tax Rs 1298 crores, Income Tax Rs 353 crores and other taxes and Duties Rs 337 crores

Non-tax revenue including interest and dividend receipts will be Rs. 2335 crores Market loans are estimated at Rs. 1000 crores, External loans Rs 894 crores and loan Repayments Rs. 1803 crores Small Savings and Provident Fund collections together are placed at Rs 693 crores Other capital receipts are estimated at Rs 1552 crores.

Total estimated expenditure of Rs 15568 crores comprises developmental outlay of Rs. 8862 crores (57 per cent), Defence outlay of Rs. 2752 crores, interest payments of R . 1600 crores, statutory and other transfers to State and Union Territory Governments of Rs. 957 crores and other expenditure of Rs 1397 crores

Developmental outlay of Rs 8862 crores comprises Rs 5314 crores on Economic Services, Rs 854 crores on Social and Community Services and Rs 2682 crores on assistance to State and Union territory Governments for development purposes as also Rs 12 crores of Plan expenditure included under General Services. Of this, Rs. 5790 crores will be under the Plan and Rs 3072 crores outside the Plan. Plan provisions include Rs. 3978 crores for Central Plan, Rs 1645 crores for Central assistance for State Plan and Rs. 167 crores for Union territory Plan. The Central Plan provision includes substantials allocations to Agriculture (Rs. 525 crores), Industry and Minerals (Rs. 1939 crores), Water and Power Development (Rs. 210 crores, excluding Rs 110 crores for the Rural Electrification Corporation programmes in the State sector), Transport and Communications (Rs. 651 crores) and Social and Community Services (Rs. 597 crores)

Other expenditure of Rs. 1397 crores which constitutes only 9 per cent of the total expenditure includes organs of state (Rs. 77 crores), principal taxes collection charges (110 crores) currency and coinage (Rs. 71 crores) subscription to IMF 208 crores), police (Rs. 224 crores), other administrative services (Rs. 186 crores), pensions (42 crores), interest in compulsory deposits (Rs. 122 crores), aid to other countries (Rs. 82 crores) and miscellaneous loans, including loans to Government servants (Rs. 59 crores).

The Rupee-How it Comes & Goes

Out of every rupee which the Government will collect during the current year, 23 paise will come from excise, 15 paise from nontax revenue, 12 paise from loan recoveries, 11 paise from customs, 11 paise from market loans, small savings and provident fund, 10 paise from other receipts, 8 paise from corporation tax, 6 paise from external loans and 2 paise each from income tax and other taxes.

From every rupee thus collected, the Government will spend 37 paise on plan and 20 paise on other development expenditure. Defence will cost 18 paise, interest payments 10 paise, other expenditure 9 paise and statutory and other transfers to State and Union Territory Governments 6 paise.

MORE JANATA TRAINS

SURPLUS RAILWAY BUDGET FOR 1977-78

INTRODUCING the Railway Budget for 1977–78 in the Lok Sabha on June 11, Shri Madhu Dandavate, Minister for Railways, announced that the additional long distance trains to be introduced in the coming years would all be classless Janata trains.

He also announced that instructions have been issued to manufacture a prototype second class coach with more basic amenities so that long distance passengers, particularly on trains with limited stops, did not suffer from lack of these conveniences. He was also considering provision in the second class sleeper coaches of certain long distance trains of some type of, not very expensive, padded cushioned berths so that the common man might travel without having to carry his own bedding.

T'e Railway administration has been instructed to improve the facilities available in the station concources by provision of toilets and benches on a programmed basis.

The Railway Minister said that the Indian Railways would make use of their resources including modern technology to reduce the sufferings of second class passengers. To reduce overcrowding in long distance trains the Railways were considering introduction of trains consisting of double decker coaches on specified routes.

The Railway Minister also announced reduction in the platform ticket rate from 50 Paise to 30 Paise This reduction will be effective from July 1, 1977.

NEW RAILWAY LINES

Shri Madhu Dandavate assured the House that, in consultation with the Planning Commission and the Ministry of Finance, he was exploring all avenues of mobilising more resources for taking up construction of some new railway lines Some of the lines which were urgently needed for in the development of backward areas of the country were the west-coast Konkan Railway linking the southern States, Dallirajahara-Jagdalpur line in Bastar District of Madhya Pradesh, Dharamnagar-Kumarghat line in Tripura, Ernakulam-Alleppey line in Kerala, Bhavanagar-Tarapur line in Gujarat and Dehri-on-Sone to Banjari line in Bihar.

The Railway Minister informed the House that the arrangements were being streamlined and simplified in order to ensure disposal of claims within a reasonable time which normally would not exceed six weeks. For this purpose greater delegation of power to officers as well as to field supervisory staff for settlement of claims has been decided upon Moreover the system of settlement of claims by mobile claims offices would be extended

PLAN OUTLAY FOR 1977-78

The Railway Minister said that as a result of a comprehensive review undertaken by the Ministry of Railways in consultation with the Ministry of Finance, the Railway Plan for 1977–78 has been reduced from Rs 501 crores to Rs 480 crores including Rs. 10 crores for Metropolitan Transport Projects at Bombay, Calcutta, Delhi and Madras. However, he said, no reduction has been made in the allocation for new lines.

Shri Madhu Dandavate said that with the implementation, in just four weeks, of his assurance given to Parliament while presenting the Interim Railway Budget that all the railway employees victimised during May 1974 strike would be reinstated within six weaks, a better industrial climate has been created, in the Railways These swift steps coupled with spurt in economy have improved the freight operations of the Railways in recent months The performance has in fact, been better than anticipated in the Interim Budget. In view of the improved trend, the Interim Budget target of originating revenue earning traffic for 1977–78 has been raised from 217 million tonnes to 220 million tonnes. Accordingly, the goods earnings were now estimated to be Rs 1382 94 crores as against Rs. 1362.76 crores anticipated in the Interim Budget The Railway Minister did not envisage any change in the estimate of passenger earnings which were based on six per cent growth over the previous year The gross traffic receipts had accordingly been placed at Rs. 2110 24 crores against Rs. 2091 44 crores estimated earlier

As regards ordinary working expenses the provision of Rs. 1635.75 crores (net) made in the Interim Budget has been increased by about Rs. 13 crores to provide for additional maintenance and operating expenditure due to the revised traffic target The net surplus of the Railways during 1977–78 was now expected to go up by over Rs 6 crores from Rs 26.45 crores to Rs. 32.50 crores These results would be achieved without any increase at all in the fares and freight rates in the year 1977–78.

Increased Surplus

The Railway Minister said that taking into account the surplus for 1976–77, which would be about Rs. 65 crores, and the increased surplus expected to be achieved in 1977–78 the Railways indebtedness to the General Revenue will go down by over Rs. 37 crores reducing it from Rs. 477.18 mentioned in the Interim Budget to about Rs. 440

Platform Ticket Rate Reduced to 30 Paise

crores.

The Railway Minister said that inspite of the surplus expected during 1977–78 the Railways has still a long way to go to become an economically viable unit. He was confident that he would have the co-operation of all the Hon. Members of Parliament, the public and the organised labour in the process of making the Railways service-oriented and productive.

Paying special tributes to the railway staff, the Railway Minister said that railwaymen have demonstrated their renewed interest in keeping the Railway wheels moving fast so as to serve the public to the best of their ability.

Financial Results for 1976-77

The Revised Estimates for the financial year ended March 31, 1977 were based on the originating revenue earning freight target of 206 million tonnes against 202 million tonnes anticipated in the original budget. Under passenger earnings, on account of the substantial increase in passenger traffic during April to December 1976, the Revised Estimates were kept at about 10 crores.

Estimates 1976–77. Despite provision of a higher liability for payment of dividend to General Revenues (Rs. 211.30 crores against Rs 207.60 crores in the original budget), the Revised Estimates forecast a net surplus of Rs. 35.67 crores against about Rs 9 crores in the original budget

Approximate Actuals 1976-77

The accounts for the financial year ended March 31, 1977 will be finally closed by the end of July 1977. The approximate actuals for 1976–77 compiled by the Railways indicate that the gross traffic receipts may exceed the Revised Estimates by as much as about Rs 40 crores. The increase is mainly under goods earnings due to the actual originating revenue earning loading during the year being as much as 212.27 million tonnes against the Revised Estimates target of 206 million tonnes. Allowing for appropriate increase in the revenue working expenses due to the substantially highr freight traffic, it is now expected that the actual surplus for the year 1976–77 may be of the order of Rs 65 crores against the Revised Estimate

In view of the expectation of further improvement in freight traffic, the target of originating revenue earning loading has been raised in the present Budget for 1977–78 to 220 million tonnes. There is no material change in the quantum of earnings from other sources The gross traffic receipts have been placed at Rs. 2110 24 crores against the interim Budget Estimate of Rs. 2091 44 crores

Under ordinary working expenses, increased provision of about Rs. 13 crores has been made in view of the higher traffic target, while the appropriations to the Depreciation Reserve Fund and the Pension Fund have been retained at the level provided in the interim Budget In the net result, the net surplus of about Rs. 26 45 crores forecast in the interim Budget is expected to go up by about Rs 6 crores to Rs. 32.50 crores This surplus will not only fully meet the budgetted outlay under the Railway Development Fund, including interest payable on temporary loans obtained from the General Revenues but will also leave a balance of Rs. 5.84 crores for transfer to the Revenue Reserve Fund.

No Change in Freight Rates

per cent over the original budget. The estimates of 'other coaching' and 'sundry' earnings were also raised based mainly on the actuals of the preceding year Allowing for a slight increase under 'dues recoverable' attributable to the higher level of traffic, the gross traffic receipts in the Revised Estimates were fixed at Rs. 1987.55 crores against the original Budget Estimate of Rs 1955.82 crores, or an increase of Rs 31.73 crores

Despite the increase in earnings on account of the higher level of traffic, the ordinary working expenses in the Revised Estimates were pegged at Rs 1548.23 crores (net) and this figure was Rs. 3.19 crores lower than the original budget The appropriation to Pension Fund was, however, increased from Rs. 29.50 crores in the original budget to Rs. 34.40 crores in the Revised

of Rs 35.67 crores and the original budget of Rs 8.98 crores As a result of the higher surplus, the indebtedness of the Railways to the General Revenues in respect of expenditure chargeable to the Railway Development Fund and the Revenue Reserve Fund which, according to the Revised Estimates, was expected to be Rs. 461.98 crores as on 31.3.1977, will get reduced to about Rs 430 crores as of that date

Bndget Estimates 1977-78

In the interim Railway Budget for 1977-78 presented on 28.3.1977, the earnings from goods traffic were based on the target of originating revenue earning load in of 217 million tonnes The net surplus forecast in the interim Budget amounted to Rs 26.45 crores after payment of dividend of Rs. 225.56 crores to the General Revenues.

In view of the expectation of higher surplus in 1976–77 and 1977–78, indebtedness of the Railways to the General Revenues as on 31.3.1978 is expected to be only about Rs 440 crores as against Rs. 477.18 crores estimated in the interim Budget

Plan Expenditure

The Railway Plan as presented in the interim Budget provided for an outlay of Rs 501 crores during 1977–78, including Rs. 10 crores for the Metropolitan Transport Projects at Bombay, Calcutta, Delhi and Madras. In addition, a provision of Rs. 2 80 crores was made to meet the working capital requirement for export orders in the Railway Production Units viz. Chittaranjan Loco Works, Diesel Loco Works, Varanasi and the Integral Coach Factory,

(Contd. on page 31)

Forests of Bastar : Veritable Gold Mines

Forestry has a major role to play in Bastar. Through successful management of the Bastar forests it will be possible to start industries like paper mills, plywood, hard board etc. which will provide employment to large number of persons especially adivasis who have been living in these forests centuries after centuries.

SITUATED in the south of Madhya Pradesh Bastar district is the third biggest district in India The first two districts Laddakh (Jammu-Kashmir) and Kutch (Gujarat) although larger in area are sparsely populated while the population of Bastar at 15 lakh souls is more than that of these two districts 71 4 per cent of the people are adivasis and harijans and their life is closely related to the forests Despite being the owners of valuable forest wealth the adivasis of Bastar district live in poverty The reason for this is that the simple and innocent adivasis are being exploited by unscrupulous and cunning persons The State Government have enacted many laws to end their exploitation

The area of Bastar district is 39,171 square kilometres of which 21,689 square kilometres is covered by forests In other words 55 per cent of the total area is forest-clad Of the forest area 9851 sq kilometres is under reserved forests and the rest 11,848 sq kilometres is under protected forests Sal, teak, bija, haldu and many other varieties of timber trees abound in these forests. 37 per cent of the total forest area is under sal, eight per cent under teak and 55 per cent under other tree species Bamboo is also abundant in many parts. According to the pre-investment survey of Forest Resources, 187 lakh cubic metre of wood and 48.40 lakh tonnes of bamboo is available in the forests of the district.

It has been estimated that if the forests of the district are properly exploited, 31,40,000 cubic metre of additional wood and 3,20,000 tonnes of bamboo can be extracted from them every year. At present, for want of demand for other varieties of wood, only teak, bija, sal and haldu are extracted from the forests The quantity of bamboo being extracted from these forests is also very small

EXPLOITATION OF FORESTS

If the forest wealth of Bastar is properly exploited and utilised industries like paper mills, ply-wood, hard board etc may come up Realising the necessity of scientific exploitation of forest wealth for this purpose an intensive forestry division has been established in Bastar

For proper management and development the forests of Bastar are divided into two circles—the south Bastar forest circle and the north Bastar forest circle Both the forest circles yielded a revenue of Rs 3 98 crore to the Government in 1971–72 Following further development of of the forest resources this revenue increased to Rs 11 83 crore 1975–76

The nationalisation of forest product on the one hand, resulted in considerable increase in revenue accruing from tendu leaves and minor forest produce and on the other hand it has provided regular employment in about 6,000 adivasi families living in 149 forest villages of the district. The revenue of Rs 84.12 lakh earned in 1971–72 from state trading in tendu leaves went up to Rs 1.58 crore in 1975–76 State trading in minor forest produce like babul-gum, harra etc. yielded an income of Rs. 15.55 lakh in 1971–72 which rose to Rs. 25.61 lakh in 1975–76.

Similarly, as a result of the nationalisation of timber trade, the State Government earned a revenue of Rs 2.62 crore in 1971–72 from the sale of teak and other valuable timber This revenue gradually increased to Rs 9 38 crore in 1975–76. In 1974 the Government nationalised trade in bamboo The State Government earned an income of Rs 11 90 lakh last year from this trade alone In 1975 trade in sal-seed was also nationalised As a result, in both the forest circles more than 63 lakh quintals of sal-seed was collected and sold yielding a revenue of about Rs 32 lakh

Plantation in a planned manner has also been undertaken to meet the future requirements from the forests and to familitate their scientific exploitation Over the last 28 years, teak was planted in 15,607 hectares, eucalyptus in 8,419 hectares, bamboo in 576 hectares, 'semal' in 11 hectares and pine in 32 hectares in the district

Timber depots have been established at Bijapur, Dantewada, Sargipal, Kondagaon, Narayanpur, Bhanupratappur, Sukma, Konta, Keskal and Kanker. On an average 1,65,000 cubic metre of timber is sent to various places every year from these depots, which provide employment to 1500 persons daily round the year

The development of Bastar district is intimately linked with the development of its forests which yield crores of rupees to the Government. Some of this income is spent by the Government on the welfare of the adivasis and on providing basic amenities of a better life to them. □

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ULTIMA/H/60

TEN PLUS TWO REVISITED

Content and Standards of Proficiency aimed at are more important than determining the duration of courses

V.V. JOHN

DISCUSSION of the ten-plus-two-plus-three pattern, pretentiously called the new pattern of education, has been so ubiquitous and continuous that one might wonder what we shall do by way of educational wrangling, once the pattern is accepted and implemented throughout the country But we need have no fear The current discussion will continue for quite a while And we may be sure that the morning after the pattern is universally adopted, we shall begin discussing how to unbuild it again

This is not as cynical a forecast as it sounds We may recall the fervour with which the eleven-plus-three pattern was forced on the States with much cajoling and bribery, and the upbraiding that was administered to the two States that did not fall in step It may be noted that some of the principal promoters of that pattern are still around to promote the new pattern, and have even been heard claiming that this new pattern was what they had been keen on all along, and that the eleven-plus-three was only a temporary compromise I heard one of them even brazenly declare that the eleven-plus-three was a mistake, and the wise course now is to cut our losses promptly and go over to the new pattern That the losses we are asked to cut involved crores of public investment, and that the compromise played with the schooling of millions of children, do not unduly bother these reformers A friend of mine recently wondered whether the fact that the two principal advisers of the government during all this turn-and-turn-about were men who had no children had any special significance

What is wrong with the debate over the ten-plus-two-plus-three pattern is that it is the wrong debate Every-one should be able to see the foolishness of determining the duration of courses before deciding their content and the standards of proficiency aimed at If the content of courses and the level of proficiencies were determined first, it is possible that we may arrive at a ten-plus-two-plus-three time schedule as a general pattern, though we shall also discover many possible variations of it to suit individual pupils and individual institutions We may also discover what a lot of the traditional curriculum could be scuttled without detriment to standards, and what exciting variations of the curriculum are possible on an institutional basis

In fact, the right approach would be to indicate the skills, and proficiency levels, expected at the elementary, secondary, higher secondary and first degree stages, and institute a network of testing agencies for the certification of such skills and proficiencies at the different stages The number of years spent in school and college for acquiring them should cease to be a prime consideration Even the skipping of certain intervening stages in reaching out to more advanced levels, should be permitted. Attendance rules, not too rigidly enforced anyway when there is student trouble, are allegedly needed because the young would not otherwise learn the advantages of regularity and diligent application It may however be noted that the young people who particularly need this kind of discipline are the ones that nowadays obtain exemptions, from such rigidities through one sort of clamour or another In any event, the mere attendance in classrooms, and the periods of such attendance are no reliable way of assessing the progress of one's learning

Too many Subjects

The new pattern is often commended for the uniformity that will be achieved that way throughout the country And yet, the success of the new pattern and of much else that is being talked about these days, will depend on the freedom that will be available to individual institutions to vary the curriculum and try innovations and experiments. Educational authority could limit its jurisdiction to testing basic proficiencies such as in languages and mathematics, and prescribing areas that students should explore under suitable guidance in individual institutions, or even outside institutions In other words, common external examinations should be limited to a few basic subjects and skills, and other testing and all experimentation should be left to the schools and colleges, subject to the vigilance of the boards of education and the universities Without such freedom, we shall not be able to introduce into our system the non-formal ways of learning that is now being talked about with increasing fervour Without such freedom, it is difficult to see how meaningful programmes of work experience can be planned to match the needs and resources of particular regions and communities. Educational authority should abandon the notion that education will not happen unless it prescribes every move and watches every step

Almost the first thing that the new Minister of Education stressed on assuming office was that, in the school courses designed for the new pattern, there were too many subjects and too many textbooks This overcrowding of the curriculum is obviously the result of a certain administrative anxiety lest something vital should be left out, if the matter were left to individual schools and teachers In the process the simple psychological fact of how much learning could take place if the young were left to themselves in a congenial environment, has been ignored Also ignored was the possibility that the wisdom of curriculum makers in Delhi and the State capitals could profitably be supplemented at many points by experienced and enthusiastic teachers throughout the country

Largely at the Minister's behest, one presumes that some pruning will be done on the quantities of learning earlier scheduled for school classes At a conference recently called by the Minister of Educatio , mention was made of the 700 pages of history, of India and the world, that the NCERT had prepared for the tenth

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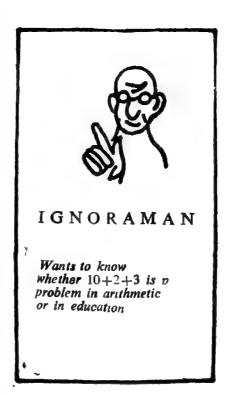
Shri John is a well known educationist

class The NCERT spokesman, speaking rather defensively, indicated how several parts of the two history volumes could be left out. A few kings and battles more or less would not apparently matter. But the real worry was not about the size of the history books, but over the question whether everyone trying to learn everything in school was the best preparation for entry into the world of work or into the world of the higher learning.

A great part of the discussion at the conference mentioned above was devoted to the curricular options that would be available at the 'plus-two' stage The 'vocational stream' received the most attention. The Gandhians disapproved of the 'streaming', and would want productive work to be part of the curriculum for all More important than training for specific jobs, was the need for breaking down the psychological inhibitions among the educated in regard to manual labour.

A question that was asked by one of the teacher participants remained till the end He presumed that the vocational courses of the technological variety would be rather like the courses in the ITIs and polytechnics. He instanced the basic electrical technology, basic airconditioning and refrigeration technology, automobile servicing and maintenance, and elementary sanitary technology, mentioned in the Central Board of Secondary Education's list of vocational courses for the 'plus-two' stage. His information was that, in Delhi alone, there were on the live registers of the employment exchanges 6000 holders of diplomas of ITIs and polytechnics waiting for the jobs for which they have been trained; and there is an annual output of 4000 such diploma-holders in Delhi. He wanted to know whether a different prospect awaited those who would take the vocational courses at the higher secondary level.

To use the distasteful phrase now in common use, these unfortunates will be 'siphoned off' into the world of work, but the world of work may not have any use for them All that may be achieved is a small reduction in the vast numbers that rush annually into the universities. Among the two 'streams', there will be no genial singing of 'Oh, ye'll take the high road, and I'll take the low road'. For those that take the low road would feel that they have been tricked into an inferior status, while the privileged ones proceed to the university, to a degree, and to better job prospects. There will be protests against this trickery, and we shall soon be working on another pattern as the final answer to our educational ills

The designing of 'terminal' courses for any section of pupils is a piece of educational stupidity. Education can be terminal only in the sense in which Mark Twain once said that education was not as sudden as massacre, but in the long run it was more deadly. Anyone who is told that he is doing a terminal course is not likely to be filled with a sense of impending achievement, but is almost sure to be resentful that he should be denied the larger opportunities that accrue to those in the 'academic stream'. As for employment prospects the outlook is at the moment gloomy for both streams, but the university man is able to survey a larger vista

But the 'plus-two' stage could become crucial if it were used as a way of helping students to ascertain their own aptitudes, and if both careers and further studies are available to all students, and the vocational stream does not involve any inevitable 'siphoning off'. The success of courses that fit young people for direct entry into the world of work wolud also depend not only on the ready availability of work, but also on an equitable wage structure in the country, under which what counts is the work done and not the academic credentials one produces.

Let me end this on a personal note. Besides having been a teacher for many years, and an educational administrator, I have also had the advantage of belonging to a large family where my lot has been cast not only among my sons and daughters but also among the battalion of nephews and nieces. In the last thirty years, they have been educated in different parts of the country, and have been through a variety of patterns of schooling, such as the ten-plus-two-plus-two, ten-plus-one-plus-three, eleven-plus-three, and ten-plus-two-plus-three. Their academic performance has been of varying quality, some good and some not so good. But it is my conviction that the quality of the performance and the quality generally of the end products of our school and college system, owed very little to the different time-patterns that the schools and colleges followed. They owe a great deal to the quality of the schools and colleges they have been to, but none, so far as I could see, to the time schedules they were put through The moral I draw from this family experience is that the quality of our education will not owe anything to the sort of numerology that is engaging the attention or reformers; it will depend on other, and more intellectual and moral inputs □

Weed Can Replace Gobar Gas

Waterhya cinth, the troublesome weed, can be used in place of cowdung to produce domestic fuel gas, according to scientists at the Central Mechanical Engineering Research Institute in Durgapur. Water hyacinth is available all over the country. It covers an area of 200,000 acres in Bihar alone. CMERI has found that it has some advantages over cowdung. The operation of a gobar gas plant requires five cattle, which an average villager does not possess. Water hyacinth decomposes quicker than cowdung and yields 50 per cent more fuel gas.

Integrated Rural Development Planning: Role of Panchayati Raj Bodies

H.R.S. IYER

PANCHAYATI raj institutions have not served as effective channels for participation in national development planning even in the restricted sense of making the elected representatives of panchayati raj bodies aware of the planning objectives. The national Planning Commission has not been able to envisage a realistic role for Panchayati raj bodies in their planning exercises. In other words, panchayati raj bodies have not obtained a share in the process of national planning and development that calls for their participation

The planning apparatus at the state and national levels have rarely shown any genuine interest to seek the purposeful and meaningful involvement of the panchayati raj bodies in their own policy formulation and decision-making processes In fact, panchayati raj bodies have been merely an agency in the implementation of the plans since the formulation of development plans and programmes, their objectives, priorities, physical and financial targets, etc have invariably been decided by the Union and State Governments and implemented through the governmental agencies including panchayati raj bodise.

Planning is a two-way process

There is a school of thought which believes that planned development requires centralised planning There is another school of thought which says that integrated rural community development and area development needs integrated decentralised planning Although there are three approaches to social change namely evolution, planning and revolution, in most countries plan social change is accepted as the strategy for social change There are three models namely centralised planned change, decentralised planned change and a combination of both. Of late, the importance of both centralised and decentralised planning is recognised by the planners and policy makers for to remedying the short-comings of national planning and for developing the socio-economic conditions of the entire people and all areas. In short, planning is a two way process namely planning from above and planning from below and both are necessary for integrated national development

Shri Iyer is Professor of Panchayati Raj, College of Post-Graduate Studies, Gandhigram, P.O. Madurai

In most countries, planning activities in the social, political, economic, physical fields etc. are undertaken at the national level. These include not only the underdeveloped and totalitarian countries but also the developing and more developed democratic or socialist countries Yet there is room and possibility for decentralised planning to make up for the short-comings of centralised planning.

There is a view that the process of planning and the process of democratic decentralisation are incompatible to each othe.. In other words, planning and panchayati raj are incompatible to each other. There is yet another view that panchayati raj and planning is possible and essential at least at the panchayati raj level There is no question of panchayati raj versus planning by panchayati raj plus planning with a view to accomplishing the goals of panchayati raj.

Let us examine the rationale and need for integrated decentralised planning Integrated decentralised planning is indispensable not only for the growth and development of Panchayati raj but also for the success of national development effort Whatever the form of government, parliamentary or presidential, federal or unitary, totalitarian or democratic, it is utopian to manage functions from the capital. In a unitary form of government, the entire functions of government are distributed among various governmental agencies. But in a federal structure, since there are three tiers of government namely, union, state and local, there is need for planning apparatus and activities at all the three levels.

Our country is wedded to establishing a democratic welfare state and a democratic socialist society Hence it follows that the government is mainly concerned with the balanced development of all the areas. Both the urban and the rural people should be provided with basic minimum amenities and also to improve their socio-economic conditions

Even Distribution of Benefits

The need to spread the fruits of planned development over as wide an area as possible was recognised by the planners even in the First Five Year Plan. In other words planned economic development should result in a more even distribution of benefits, a fuller life of an increasingly large number of people and the building up of a strong integrated democratic nation. The populist

goals of economic growth with distributive social justice as well as meeting the national minimum needs programmes demands overall development of the entire people and the balanced, decentralised and optimum rate of growth or development of all areas, which can be possible only through integrated decentralised planning. The need for removing regional social and economic imbalances through integrated decentralised approach cannot therefore be overstressed. There are a number of underdeveloped pockets in many parts of the country There is also divergence in the level of development in various parts of the country The removal of regional imbalances or integrated, balanced and co-ordinated area development is possible only through integrated decentralised rural community development and area developament planning

This calls for not only the preparation of a separate integrated area development plan for each rural district, but also high priority in the allocation of industries in backward areas and more allocation of union and state funds to backward areas compared to developed or advanced areas with a view to minimising the gap between the developed areas and backward areas thereby accelerating the development of backward areas. The allocation of funds in different areas should depend on the real needs of the people, level of development and the potentialities of the areas. In short, integrated decentralised planning is a means for promoting, the process of integrated area development planning

In such a vast country like ours it is very essential that there is decentralised planning in order that the people are inspired to have direct participation in development and welfare plans and programmes Authentic integrated rural community development and area development requires authentic rural community participation in the process of integrated rural community development and area development planning. Authentic community participation in the formulation of rural development and welfare programmes can be a reality only when rural development and welfare programmes are based on the needs, and aspirations, of the rural community. In short, there is an indispensable connection between authentic community participation in plan formulation and plan implementation.

Peoples' Participation

It must be remembered that community participation and community development are synonymous and panchayati raj system came into existence as a result of the failure to evoke community participation in rural development and welfare programmes. The rural community should be given opportunties to take part in the process of decision making pertaining to their own development through governmental agencies including panchayati raj bodies and non-government organisations including voluntary social welfare organisations.

This psychological support of the rural community is indispensable for tapping and utilisation of manpower resources or under-used community resources as well as mobilisation of material resources. In other words, with active participation, resource mobilization for legal plans becomes easier. Village panchayat can make a better adjustment between overall development and welfare needs of the rural community on the one hand and human and material resources on the other. Panchayati raj bodies are in a better position to identify and develop the backward areas in their jurisdiction by allocating proportionately larger resources in their budgets for their maximum development in order to supplement the allocation of a large share from the total development funds of the union and state governments to under developed areas

Planning activities relate not only to the future but also to the present. It aims at solving the problems in the existing social and economic situations of the people and also taking constructive and calculated efforts to prevent the occurrence of such situations in future. In other words, planning has a curative, preventive and promotive dimensions. Panchayati raj bodies can thus undertake these responsibilities of planning of rural development and welfare programmes which aim at improving the existing socio-economic conditions of the people as well as their future.

Pre-requisites for Integrated Development

Let us now examine the requirements of integrated rural development planning. Firstly, the planners and policy makers, should recognise the importance of integrated and decentralised community development and area development plans and programmes and the crucial role of panchayati raj bodies. Not only that there is a need for evolving integrated rural district development planning, but also there should be planning and administrative apparatus at different levels. There should be decentralisation and devolution of power and responsibility to the elected representatives of the three tiers of panchayati raj in the field of rural community development and area development planning and administration. There should be a separate pan chayati raj sector exclusively for integrated rural community development and area development planning. Panchayati raj should be free to plan, of course, in conformity with the national goals. The relative roles of state and panchayati raj bodies in integrated national planning, development and administration should be clearly specified and well defined. The state governments should be more aware of the values and possibilities of involving panchayati raj bodies in planning activities. Both the officials and non-officials of panchayati raj bodies should have adequate knowledge and experience in the process and techniques of planning. Hence the need for training of officials and non-officials in the process and techniques of planning and skills in the planning work which, inter alia, include objectives of planning, their responsibility towards the community, knowledge and skills of planning in their specific areas etc. There should be adequate allocation of funds not only in the Five Year Plans and annual union and state plans but also at the disposal of panchayati raj bodies with a view to developing underdeveloped areas.

One of the pre-requisites for integrated decentralised planning is a radical change in the existing power relationship between the state and panchayati raj bodies. Panchayati raj bodies should have adequate powers at their disposal to make decisions pertaining to rural community development, and area development planning. The existing panchayati raj bodies are not strong enough and well organised to undertake planning activities.

Integrated rural community development and area development planning calls for decentralised and democratic mechanisms for each rural district. The formulation of plans should be entrusted to a rural district development board consisting of officials of district level development departments and non-officials of panchayati raj bodies. The village

(*Contd. on page* 28)

FOR A BETTER TOMORROW

One of the many abundant resources of India are its children the future architects of our country. History will judge us on how well we prepare, educate and use them for fulfilling their destiny as the future citizens and statesmen of the country.

An unprecedented educational revolution has occurred in our country during the last 30 years. Primary education is free in all the states and compulsory in most of the states. Eighty six per cent of the children in the 6-11 age group are today at school. There were about 85.8 million students in schools in 1973, equal almost to the entire population of Bangladesh or Bulgaria. History has seldom seen such a tremendous explosion of human mind within so short a space of time.

Yoj

Ph

Story

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Forestry And Its Eco-System

L.C. SHARMA

Forest area has been gradually diminishing over the years in India due to various reasons. But in certain regions reckless cutting of forests by tribals practising shifting cultivation has not only reduced the forest area but has also initiated soil erosion and floods. The Government is aware of the seriousness of the situation and has initiated a number of programmes in the Fifth Plan to wean the tribals from the bad practice of shifting cultivation and to stop further encroachments on forest lands.

For many years the action of man in the country has been responsible for diminishing tree growth by burning, clearing and felling trees for fuel, or by making way for agriculture, settlement or industry The deterioration which was slow formerly has been speeded up with the explosion of population. Since India is an agrarian country, additional land is being constantly demanded for cultivation, both for normal cultivation and for shifting cultivation. The impact of these practices is so great that the forest area is being reduced very rapidly.

Forest degradation and removal are not the only evils which result from over-cutting. The removal of forests from the mountains and hills has initiated or encouraged soil erosion by gullying or sheet-wash, or has prompted landslides. The soil removal from the land has helped silting up river beds and thus caused flooding or reduced the possibilities of navigation in the rivers. It has also endangered the economic life of our costly multi-purpose river valley projects which are so valuable for the nation.

Dr. Sharma is Research Officer (Forest Resources) Planning Commission, New Delhi.

Though shifting cultivation is practised in sixteen states of India, the greatest harm has been caused in the tribal belt of Orissa, Madhya Pradesh, Andhra Pradesh and the North-Eastern region. It is known differently in different states as 'jhum' in Assam, 'kumri' in Karnataka', 'podu' in Telgu, 'podu' and 'binga' in Orissa, 'dhai' or 'dahiya', 'bewar', 'bippa' in Madhya Pradesh. According to an F.A O. estimate this type of cultivation dates back to the neolithic period. The explosion of population has brought more area under jhum cultivation and thus depleted the soil fertility. Rotation period which used to be 30 years formerly has been brought down to about 3 to 5 years. Thus a stage has been reached when this malpractice can no longer be tolerated. It is estimated that with this type of cultivation about ten centimetres of soil is washed down even from moderate slopes in one cycle in Assam hills. The soil thus washed away gets deposited in the dams and reservoirs, thus reducing their economic life.

No precise figures about the extent of land affected by shifting cultivation are available, but according to rough estimates it engulfs about one million hectares of land involving about 0.5 to 0 6 million families.

There are mainly two effects which are attributable to shifting cultivation, namely: (1) changes in soil properties—physical, chemical and biological—which are consequential to felling and burning of forests. The action causes such rapid decline in soil fertility that it compels the tribals to abandon the land in quest of fresh land; and (2) ecological aspeots

An important destructive effect of shifting cultivation can be seen on the organic matter and human reserves in tropical soils. In the process of burning and clearing the natural forest growth, the soil loses its vegetative cover. Most of the litter is consumed in this fashion since the soil is left with a thin layer of ash. The top soil is exposed to decompose rapidly so that the ash is washed down into the soil It may be washed off the surface due to exceptionally heavy rains or relatively impermeable soils, or slopes. Furthermore soil erosion is dependent upon the extent the soil is exposed during the subsequent cropping cycle. The surface erosion is likely to be heavier than before if the land is cleared again during the second year for another annual crop rather than to leave it under semi-permanent crop.

It is unfortunate that no data exists to prove the changes brought about by shifting cultivation in the soil properties. Nevertheless there is evidence that excessive use of fire under tropical conditions coupled with overgrazing or shifting cultivation causes degradation of plant cover and oil condition.

Various organisations, institutions, and Committees have tried to assess the problems of shifting cultivation in the past. Some States/Union Territories have implemented Research/pilot schemes but these schemes have never been coordinated. However, the tribals have been practising shifting cultivation for generations. The practice will have to be stopped, but gradually and with their consent. A scheme for the control of shifting cultivation has been formulated with an outlay of Rs. 14 million in the Central Sector. The scheme will start in the current year in Madhya Pradesh, Orissa, Tamil Nadu, Andhra Pradesh as well as the States/Union Territories in the north-eastern region

In the State Sector, substential outlay has been provided under soil conservation and jhum control schemes, especially in the north-eastern region, where jhum is a serious problem. The State-wise outlays for the Fifth Five Year Plan are as uder:

	Rs Million
1. Assam	38.00
2. Meghalaya	40.00
3. Manipur	20.00
4. Tripura	30 00
5. Nagaland	43.30
6. Arunachal Pradesh	14.40
7. Mizoram	22.50
Total	208.20

The entire outlay of Rs. 40 million in Meghalaya will be devoted to jhum control. In case of other States the programme of soil conservation will help in jhum control.

On the recommendation of Planning Commission in 1973 the Ministry of Agriculture and Irrigation constituted a Board to keep under constant review the planning and preparation of schemes for the settlement of shifting cultivators; arrange for the execution of these schemes through State Governments, and to ensure that these areas received the attention they deserved.

Rationalisation of shifting cultivation would involve (i) all the necessary protective measures to be taken in accordance with sound agricultural practices; and (ii) allowing a period of long fallow to the land to recoupe its lost fertility. Such measures are as follows:-

1. **Terracing should be done before cultivating a certain plot. It will conserve soil and moisture. Each practice is already in existance in some parts of Nagaland, Jaintia hills in Meghalaya and Apatani plateau in Arunachal Pradesh.**
2. **Mixed culture like cash and fruit crops viz. cardamom, coffee cotton, chillies, pineapple, jack fruit, banana, etc., besides the crops of rice, maize, millets, etc. should be taken up.**

A view of hills clothed in dense jungle

3. **Mixed crop planning should be introduced during the cycle; and**
4. **Windbreaks should be created and contour 'banding, should be introduced.**

Plantations of fast growing suitable species should be grown in conjunction with agricultural crops. viz. agro-silvi system or the *taungya* method. This type of cultivation will bring additional income to the tribals as compared to the traditional form adopted by them at present.

A provision of alternative employment to the shifting cultivators should be made to relieve the pressure of population on land. This might help improve, too, their economic conditions without interfering with their way of life.

Degradation of forest

In early times many forest areas were cleared for extension of agriculture. The remaining forests were used for fuel (charcoal) by the developing industries and wood for constructional purposes. Till the nineteenth century wood was used as essential component for the shipbuilding industry. This process led to depletion of forest reserves. A major railway system which required millions of sleepers was developed during the nineteenth century. Enormous quantity of logs was used in the coal-mining industry. Finally the pulp and paper industry put up the forest evergrowing demand for the wood-callulose for paper manufacture. However, one should not forget that forests cannot regenerate naturally. If too many trees of a species are removed, the production of seeds and consequently of new trees is of course hindered. The forests in Kumaon were degraded because the Rajah kept on cutting areas and never thought of replanting them. The "Muafidars" (right holders) of Dehra Dun cut down the trees from the hill slopes near Mussorie. No automatic regeneration of trees took place there. In fact it brought about heavy soil erosion.

Land is claimed for so many uses—agriculture, urban development etc. Some are complementary uses such as forestry. Agriculture and recreation are other uses. The

location of some lands makes them so highly valuable for urban and industrial development, for urban recreation and for construction of roads, that neither forestry nor agriculture can compete for them. Forestry in India is unlikely ever to be a hard competitor for large areas of fertile land. Rather agriculture may take away some chunks of good forest land for crop production. According to latest law not more than 20 acres of forest land can be taken away for agricultural purposes.

Despite the National Forest Policy envisaged in 1952 prescribing that India as a whole should aim at having at least one-third of its total land area under forests, about 3.4 million hectares of forest lands were deforested during the period 1951–52 to 1972–73 out of a total of 75 million hectares of forest land. Deforestation up to 1951–52 to 1968–69 was about 1 7 million hectares. The pace has been so quick as to cover another 1 7 million hectares from 1969–70 to 1972–73.

However out of the total area of forest land lost i.e 3 4 million hectares during 1951–52 to 1972–73 the maximum area lost is to agriculture viz 71.5 per cent. Next come the River Valley Projects with 11.8 per cent Miscellaneous purposes account for 11.4 per cent. establishment of industries 3 7 per cent and construction of roads etc., 1.6 per cent. Another important aspect is that among the States, Madhya Pradesh tops the list in losing nearly 46 per cent of its total area of forest land Of this agriculture took a toll of nearly 42 per cent. West Bengal is second with 9 percent forest area lost Of this the agriculture absorbed nearly all the area, other purposes being negligible The position in respect of Union Territories is not different from the States. Of the total forest area lost viz. 2.90 per cent, agriculture shared 1.50 per cent.

Soil Erosion in the Himalyas

According to Hans Christoph Rieger three factors are chiefly responsible for causing floods and soil erosion in the Himalayan forests. They are :

1. A natural weather process in the hills and the transportation of fertile sediments to the plains,
2. Effects of population pressure on the existing forests, the soil and the water; and
3. Effects of migration on a destruction of the mountain environment.

According to him the first is incorrigible. But, the Government of India have tried to deal with this problem not only in the Himalayan Ranges but also in all hill catchments in the country This programme was started in 1962 and it is still continuing. Till the end of the Fourth Plan the Government had spent Rs. 460 million on this. A sum of Rs 320 million will be spent on the programme during the Fifth Five Year Plan

The Government is likely to take up the following projects with a view to identifying the following subcatchments;

1. Sub-catchments which have a substantial vegetation to prevent soil erosion.
2. Sub-catchments which have a moderate vegetation to promote some soil
3. Sub-catchments were soil erosion exists in a substantial degree owing to lack of vegetation and needs immediate attention towards corrective measures.

The third group of sub-catchments needs tackling within a reasonable time to minimise soil erosion in the catchment and to prevent sedimentation in the irrigation projects The projects taken up so far cover an area of 70 million hectares. Of this nearly 7 million hectares fall in the third category. Of this about one million hectares had been covered till the end of the Fourth Plan though not on a sub-catchment basis Obviously the work was scattered throughout the catchment. As such the results were not commensurate with investment. The programme in the Fifth Five year Plan is strictly on the sub-catchment basis to make investment result-oriented.

There are a number of soil conservation programmes which do not form part of any catchment area. The problem of soil erosion is so great that it will be something if the Government is able to break its back even in the sixth and seventh plan period. For this an investment of Rs. 2,000 million will be required

Floods can be controlled if soil conservation measures are adopted in the catchments of the major rivers and their main tributaries The Government of India is at present busy tackling the catchments as follows:

The Government of India has yet to tackle the Jhelum in Jammu & Kashmir and the other rivers of Himachal Pradesh and Uttar Pradesh including the Jamuna and its tributaries and the tributaries of the Ghagra The Brahmaputra arising in China is a major problem and so also the river Gandak and the Kosi and its tributaries, all arising in Nepal These projects do not fall under the jurisdiction of the Government of India, it is planned to build some

(2000 hectares)

River Valley Project (Himalayan Region)	State	Area of the catchment	Critical area requiring treatment	Area treated upto the end of Fourth Plan
Bhakra (Sutlej)	Himachal Pradesh	1,820	273	111.30
Pong (Beas)	-do-	685	103	5 01
Giri Bata	-do-	246	37	—
Kalagarh (Ramganga)	Uttar Pradesh	363	54	34 24
Pohru	Jammu & Kashmir	186	28	8.14
Teesta*	Sikkim	1,266	190	—
Pagladia*	Assam	83	12	—
Total		4,649	607	158.75

* Newly included projects

reservoirs. This programme will take few decades to complete. Mean while the soil erosion programme can be tackled in the major tributories where the problem is acute. This can be tackled on the same basis as the programme of the catchment of major projects. Such catchments and sub-catchments should be identified in the Himalyas within the jurisdiction of Government of India. In such areas the programme of soil conservation and afforestation can be taken up in the same way as it is being done in case of the major irrigation projects

The programme is meant for the areas where erosion is substantial—probably 10 per cent of the total area. If this area is scientifically covered, it is hoped that nearly 50 per cent of the sedimentation from the catchments will be saved. Simultaneously other soil conservation measures of middle level intensity will have to be taken up in hand

It is noticed that substantial erosion is occurring in all those areas where a large number of roads have been constructed particularly in the Himalayas during the last 25 years Obviously our engineers have not taken adequate care about stabilising the embankments or Protecting the hill sides where cutting have taken place. This has resulted in erosion in these projected patches leading to deterioration of the road embankments, and causing land slides in the steep slopes areas In future the engineer who build the roads in the hills should be made responsible for soil stabilising and afforestation of the exposed areas. The Forest and the Soil Conservation Department can issue suitable guidelines in this respect. The expenditure could also be made a charge on the road construction.

To deal with devastation of village and community forests round human habitats throughout the country a scheme of "social forestry" has been started to provide—

1. Mixed plantations in waste lands, panchayat lands and forest areas
2. Development of social forestry including reforestation of the degraded forests and raising of shelter belts

The Darjeeling hills are being treated under a compre ensive hill area development programme and a Forest Corporation programme. This programme is the outcome of the disastrous Teesta floods.

The development of social forestry will take into account degraded forests They will be taken up for intensive plantation and maintenance of quick growing fuel trees and small timber. Priority will be given to those where fuel is needed more and more on account of the pressure of population The centre will bear 50 per cent of the cost of the Centrally Sponsored Scheme Another solution of this problem lies in the fact that every forest department fells substantial coupes for timber production every year. The actual timber forms about 50 per cent of the tree and the rest 50 per cent becomes lops and tops and shavings Most of this material rots in the interior forests This material can be linked up with the consumption areas in the populated zone by providing depots where fuel can be sold at cost price This scheme is yet to be started

India Should have one third of its total land area under forests

A large number of nomadic people depend on cattle and sheep rearing in the Himalayan Ranges. These people have grazing rights in certain high hill ranges during summer and in certain lower ranges during winter. With the increase in population the demand for meat is increasing day by day These nomadic people increase the stock in their flocks which need more fodder. As a result natural fodder ranges get over-exploited Some measures must be taken to set right this imbance and to save large fodder areas from damage before the evil of soil erosion makes it irreparable.

The nomads also keep a large number of goats along with cattle and sheep in their flocks. While cattle and sheep graze on both side of the migration path for some distance twice a year while going and coming back, they do not create a serious threat to vegetation. It is the goats that are the real trouble-shooters They pull out the roots while grazing leaving no chance for the revival of the plant during the rainy season Foresters do not like goat population grazing in the forests but traditional rights and habits of the right holders continue Goats should be banned in these areas by law as Pakistan has done in this respect.

It has been suggested to the States that they should intensify the production of high quality grass in the existing ranges with the help of chemical fertilizers In the first instance it was decided to spray the ranges with chemical fertilizers with the help of a helicopter but later it was found that the helicopter are unable to reach these ranges To overcome this difficulty it was suggested to the States that they should given fertilizers to the nomads to spray by hand By making the nomads participate in such operations the Government will also be instilling in them a sense of responsibility in maintaining the pasture lands Experience shows that by leaving the ranges fallow for a year after fertilizing good seed generater of fooder can be seen there

The responsibility of tackling this problem should be shared by the States, Centre and the nomadic people (*Contd on page* 31)

UNEVEN PERFORMANCE OF

Sharp Increase in Industrial Prod

ECONO

THE Pre-Budget Economic Survey presented today in Parliament by Shri H. M. Patel, Finance Minister, has taken a cautious view of the performance of the Indian economy in 1976-77.

It characterises the performance as uneven and draws attention to several areas where the economy seems to have fared worse than in 1975-76

Gross national product is estimated to have increased by less than 2 per cent as compared with an increase of 8.5 per cent in 1975-76 There was a decline in agricultural production of 5-6 per cent as compared with an increase of 15 6 per cent in 1975-76. Foodgrains production is estimated to have fallen to around 111 million tonnes from 120.8 million tonnes in 1975-76 There was a serious drop in the output of edible oils and cotton production did not show any improvement.

Prices rose by 11.6 per cent during the year because of the shortfall in the production of some of these commodities. Money supply increased by 17.1 per cent and added to the apprehensions about inflationary pressures. Industrial investment did not show any great signs of revival Most important of all, there were no signs of any improvement in the unemployment situation

On the other hand, the production of sugarcane and jute and mesta registered an increase. Industrial production increased by 10 per cent, something which had not happened over a decade A massive procurement operation was successfully completed and stocks of foodgrain of 18 million tonnes were built up by the end of the year. Exports rose by 23 per cent in 1976-77 What is striking is that this was due as much to an increase in volume as in value Imports declined by 7 per cent in sharp contrast to 1975-76 and there was a small surplus of Rs 72 crores Inward remittances have also increased substantially during the year and India's foreign exchange reserves amounted to Rs 2,863 crores at the end of the year after repayment of Rs 303 crores to the I M F

According to the Survey, this brings out clearly the problems which the Indian economy is facing at present The rate of growth of the economy has been much below what is neded to bring about a perceptible increase in the standard of living of the people The rate of growth is low because agricultural production which amounts for nearly half of GNP is not increasing rapidly The growth impulse of the green revolution seems to have exhausted and it has not been able to replace it with anything in rice r coarse grains. Pulse production seems stagnant as also that of commercial crops with the exception of sugar cane

Industrial growth also has t low barring the year 1976-77 I of demand seems to be the r reason for slower production consequent excess capacity In trial investment has not rev significantly. On the contrary, sures through sickness seem be increasing Export growth mitigated the impact of these fac to some extent and will continu do so But in an economy w exports account for about 5 cent of the GNP, they cannot the instrument of leading the nomy out of this low growth ph

The Survey, therefore. sugg that in order to achievehigh ove growth sates, the rates of growtl agriculture should increase su tantially To achieve this, it necessary to have both more inv ment and better implementation chinery An increase in agricult investment means primarily an rease in investment in irrigat This is of the highest priority c sidering that water is the most portant input and that only ab 25 per cent of the total area c vated is irrigated at present It involve a strategy for a proper of both surface and ground w resources as well as consider improvement in water managem Simultaneously steps will have to taken to improve the input of rese as also other inputs such as be seed, fertilisers, pesticides, impro implements, credit etc. This re res a great improvement in the duction and organisation of t supplies as well as in the inf

ONOMY IN 1976-77

ricultural Production Declined

RVEY 1976-77

ucture such as electricity, roads, narketing facilities etc

The Survey points out that such growth of agriculture is necessary ven for higher industrial growth ince the more important industries re agro-based, an increase in agricultural production will solve their aw material problems Since the ulk of the population depends p on agriculture, an increase in its rosperity means a larger market r industry and, therefore, justification for further xpansion

Price stability is important for teady growth Since the factors hich were operative in 1976-77 till continue in 1977-78, there is eed for great vigilance on the price ront Not only should credit policy mphasise restraint but there should e greater fiscal discipline. The arger volume of investment needed hould be financed from resources nobilised from the public but a arger proportion of such resources hould go into saving rather than n public consumption Simultaneously, effort should be put into larger mobilisation of resources hrough an imaginative tax policy. As the Jha Committee is looking nto indirect tax reform, the question f direct tax reform needs to be xamined as well.

Simultaneously the stocks with Government should be deployed whenever needed and imports should e effected flexibly. The twin instruments of buffer stocks and foreign xchange reserves should be used nost effectively for this purpose Advance information about domestic production prospects and advance planning of imports are absolutely essential

The need to pursue the current export strategy is obvious. The manoeuvrability which foreign exchange reserves have given us should be retained through a vigorous export drive, though this need not extend to commodities for domestic essential consumption India has the necessary capability and expertise and the experience gained so far should be put to the maximum benefit

The Survey observes that unemployment is India's most serious problem It cannot be solved without a high rate of growth of the economy. To achieve it, more resources for investment have to be raised through a flexible fiscal policy and more public saving has to be generated through a control of public consumption. This is in addition to measures which need to be taken to increase individual savings Public savings can be stepped up substantially through higher productivity, better management and appropriate price policies for public sector projects

Secondly, investment will have to be definitely more employment oriented. More investment has to be undertaken in sectors like agriculture, irrigation, village industries, small scale industries and a more extensive search has to be undertaken for an appropriate technology. Also these have to be organised far more efficiently if resources are not to be wasted.

A great deal of constitutional reform is necessary if these vital changes are to be brought about satisfactorily Land reform needs to be implemented effectively The process of planning and implementation should have greater involvement of the people if productivity and resource mobilisation are to improve Finally the organisational underpinning of extension, research, supply of inputs and marketing has to improve very greatly.

GNP, Savings and Investment

After achieving a record rate of growth of 8 5 per cent in real terms in the gross national product in 1975-76, the Survey estimates that the growth in gnp would be only between 1 5 and 2.0 per cent in 1976-77. The fall in agricultural production by 5 to 6 per cent in 1976-77 primarily accounts for the decline in the growth rate It observes that gross domestic savings in 1975-76 was 19.4 per cent of the gnp at market prices as compared to 17.5 per cent in 1974-75. Domestic capital formation also increased from 19.1 per cent as a proportion of gnp in 1974-75 to 20.8 per cent in 1975-76. The estimate for 1976-77 is that both domestic savings and capital formation as a proportion of gnp will be more or less the same as in 1975-76.

Agricultural Situation

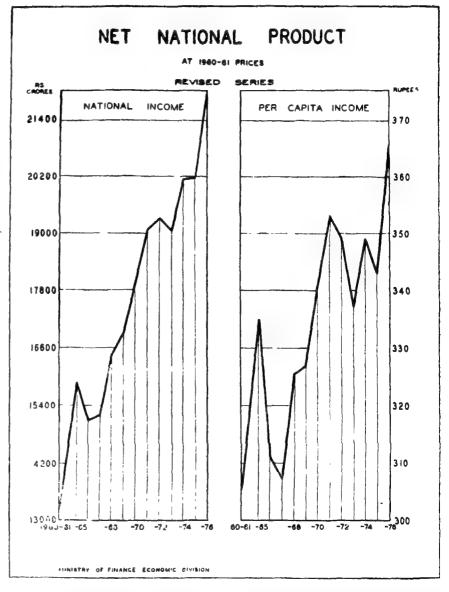
Discussing the outturn of agricultural output for 1976-77 the Survey estimates that the total food-

grain output would be around 111 million tonnes compared to 120.8 million tonnes in 1975-76. While the output of jute and mesta and sugarcane is expected to show an increase, production of oilseeds is estimated to be very much lower than in 1975-76 The output of cotton also is estimated to be no better. Overall, it is estimated that the index of agricultural production would show a decline of 5-6 per cent in 1976-77 compared to 1975-76

The Survey draws attention to the fact that Indian agriculture is still conditioned by the weather factor and will continue to do so for quite some time It also points out that the rate of growth of agricultural production in the seventies so far has been less than in the sixties High priority should be given to bringing more land under irrigation and to giving particular attention to water management if productivity in agriculture is to increase. More resources have to be made available for irrigation, a plan should be drawn up for conjunctive use of surface and groundwater resources and arrangements will have to be made for optimal use of water available, including institutional reform Simultaneously, the supply of inputs such as HYV seed, fertilisers, pesticides, better technology and credit needs to be improved considerably

While commending the improvement in credit facilities to the agricultural sector in recent years, the Survey draws attention to the fact that even with this progress only about a third of the credit needs of the agricultural sector are now met by cooperatives and other credit organisations Therefore, a further extension of credit facilities is inevitable.

It also suggests that a rural employment generation policy should form part of a local area development strategy This should include the development of agriculture and animal husbandry, the development of infrastructure, better utilisation of conventional waste materials, farm forestry, etc

The industrial production index has shown a steady growth in the last three years. From 2 8 per cent in 1974-75 it rose to 6 1 per cent in 1975-76 and 10 per cent in 1976-77 The Survey points out that whereas the recovery in industrial production in 1975-76 was mainly in the fields of electricity, coal metallurgical and chemical and allied industries, in 1976-77 manufacturing was the major growth sector Within this group large increases were registered by transport equipment, chemicals and products and basic metal industries Textiles, however, did not recover from their stagnation. The average weighted growth of the Central public sector undertakings (outside of NTC mills) was slightly over 11 per cent in 1976-77 in industries like steel, fertilisers and dry core cables Much of this improvement was due to better capacity utilisation industrial investment undoubtedly there was no great upsurge. There was not much of a revival in construction; and new investment was largely in the form of expansions and additions The emergence of a buyer's market also seems to have led to a cautious attitude Sickness in industry, though not wide-spread, has been a matter of concern for some time, particularly in industries like cotton textiles and jute. Since take

The rate of growth of production in the small scale sector is estimated to be appreciably higher than that in the large scale sector However, the overall rate of capacity utilisation in this sector was only of the order of 50 per cent

The Survey continues that without a step-up in investment it would not be possible to sustain the rate of industrial growth achieved in 1976-77 While there was some increase in over by Government is no longer the most efficient solution, other measures, have to be considered Besides through monitoring and an information system, it is necessary to prevent deterioration.

Employment in the organised sector increased by 5.20 lakhs or 2 6 per cent in 1975-76, due mainly to an increase of 4.7 lakhs in the public sector. The number of job seekers on the live registers of emp-

loyment exchanges in the country increased by 4.8 per cent to 9.77 million at the end of December, 1976. This was, however, less than half the increase in 1975. The total number of educated unemployed also rose from 48 lakhs in 1975 to 51 lakhs in 1976. The employment situation continues to be grave and the provision of employment has to be a prominent objective of development.

Price Behaviour and Price Policy

The wholesale price index recorded an increase of 11 per cent in the first half of 1976-77 mainly due to an increase in the prices of food items and industrial raw materials Prices of gur, groundnuts and ground nut oil and raw cotton accounted for half of the total rise. In the latter half of 1976-77, the price increase was less than one per cent, but the prices of items like tea, pulses rose sharply. The erratic behaviour of the monsoon, the expectation of a lower groundnut crop and cotton crop and the increase in money supply were responsible for this price rise.

Government stocks during 1975-76 (November-October) at 9.05 million tonnes were over 2 million tonnes lower than in the preceding year because of large availability in open market. Imports against past commitments and in exceptionally large procurement led to stocks of foodgrains mounting to 18 million tonnes at the end of 1976-77.

The production of controlled cloth has been declining continuously and the obligation to produce controlled cloth was reduced from 800 million sq metres to 400 million sq. metres because of the financial difficulties experienced by many mills. Due to the rise in cotton prices even this became difficult So the ex-mill prices were raised by 35 per cent in order to cover costs better. The consumer, however, did not suffer because the Government gave an equivalent subsidy to the National Consumers Cooperative Federation. At the same time a part of the controlled cloth obligation was passed on to the handloom and powerloom sector A subsidy of Re. 1 per metre would be needed to work this scheme

The experience of 1976-77 shows and the States were 5.5 per cent higher at Rs. 19,860 crores in 1976-77. While the developmental outlays were higher by 4.4 per cent non-developmental outlays were 7.1 per cent. The gap of Rs 5034 crores was to be covered by domestic capital receipts and external assistance to the extent of 93 4 per cent and by short term borrowings to the extent of Rs. 332 crores

Development expenditure by State Governments rose by 7.5 per cent and the trend over the past three years indicates that the proportion of development to total expenditure is rising Current revenues are not rising fast both because of a decline in share of Central taxes and a lower growth of States' own revenues The receipts from non-tax revenues show a decline in 1976-77 because of the losses incurred by departmentally run State undertakings

Another disquieting trend observed in the State budgets in recent years has been that some of the States whose finances were hitherto viable are showing signs of deterioration. The problem of overdrafts by cer-

Foreign Exchange Reserves Hit New High

Price policy in 1976-77 has been guided by the need to keep prices under control. Administered prices were by and large not increased but at the same time procurement and support operations were strengthened in order to provide farmers sufficient incentive. To check the rise in edible oil prices substantial imports were made by the SIC and the compulsory usage by the vanaspati industry of imported oil was raised from 20 per cent to 75 per cent To control cotton prices a programme to import 14 lakh bales was drawn up by Cotton Corporation of India and liberal imports of artificial fibre were allowed A 10 per cent blending of artificial fibre was made compulsory. A subsidy of 20 per cent of the import price of cotton was given in order to neutralise higher prices abroad

The strengthening and extension of the public distribution of essential commodities continues to be one of the important elements of price policy. Although the coverage of public distribution of foodgrains and sugar has increased over the years, releases of foodgrains from that measures of price reduction have necessarily to be accompanied by improved distribution if the benefits thereof are to reach the common man The food buffer stock and large foreign exchange reserves are powerful tools to maintain price stability To use them effectively advance planning and administrative flexibility are needed. Our ability to control prices is also limited by the state of international prices Moreover, in regard to items like pulses, imports are not possible and therefore the ultimate solution to the problem is increased production at home.

Fiscal and Monetary Policy

Annual Plan outlay was stepped up by 31 3 per cent to Rs. 7852 crores in 1976-77 The outlay on the development of agriculture was raised by 35 per cent while that on industry and minerals by 33 per cent The emphasis was on the completion of ongoing projects to increase the availability of vital inputs and infrastructure facilities in the short run

Combined outlays of the Centre tain States has also again become a cause for concern

It is worth emphasising that during 1974-75 the States made commendable efforts at resource mobilisation However, most of the States have not made any serious attempt to tax relatively undertaxed sectors There is also a tendency among the States to slacken their efforts at additional resource mobilisation in anticipation of the appointment of a Finance Commission The concessions announced recently by several States with regard to profession tax, sales tax, property tax and land revenue have further compounded this problem. There is therefore an urgent need to consider how they can augment their resources and bring about a better equity elasticity in their tax structure.

The improvement in the financial results of Central Government commercial undertakings witnessed in 1974-75 was not maintained in 1975-76. With few exceptions, the working of the enterprises leaves much to be desired and financial return from the enterprises is still far from adequate. The railways

showed a promising improvement in their financial results in 1976-77. The working of the Department of Posts and Telegraphs, however, came under strain in the last few years. In regard to state enterprises, compared to electricity undertakings and irrigation works, the road transport undertakings of the States have not done too badly.

The increase in money supply by 17.1 per cent in 1976-77 when the rate of growth in national income showed a marked deceleration was a cause for concern. The most important factor responsible for the high growth of money supply in 1976-77 was the increase in foreign exchange assets of the banking sector. Credit to the commercial sector including credit for food procurement also contributed to the expansion. Net bank credit to Government was not an expansionary force. The growth in money supply was damped to an extent by the growth in bank deposits

Credit policy therefore continued to emphasise restraint, but a certain amount of flexibility was introduced to meet the requirements of increased economic activity. In the face of high deposit growth of the banks the lendable resources were curtailed by statutory and obligatory provisions. Still gross non-good credit recorded an increase of Rs 1667 crores in 1976-77 as against an increase of Rs 1140 crores in the previous year. Of this 47 per cent was in respect of priority sectors. Industry accounted for 46 per cent of the increase in non-food credit, of which 60 per cent was accounted for by core industries

The measures taken by the Reserve Bank have only partially succeeded in limiting the growth of money supply. Every effort has, therefore, to be made to contain monetary expansion in 1977-78, without, however, affecting production and growth

Foreign Trade Balance of Payments

During 1976-77 the favourable trends in India's external payments position continued. Exports increased by 23 2 per cent to Rs. 4980.6 crores in 1976-77 and imports declined by 6.8 per cent to Rs. 4908 2 crores and a trade surplus of Rs. 72.4 crores was recorded in contrast to a deficit of Rs 1222.4 crores in 1975-76. Net invisible receipts, particularly inward remittances, were buoyant. Foreign exchange reserves, therefore, rose by Rs 1371 3 crores in 1976-77 compared to an increase of Rs 881 2 crores in 1975-76. At the end of 1976-77, India's foreign exchange reserves stood at Rs 2863 crores. However, this result has been achieved partly at the cost of investment for growth, according to the Survey.

The increase in inflow of remittances through banking channels seems to have been due to factors such as the large increase in the number of Indians working abroad, the checking of smuggling, the narrowing down of the gap between internal and external prices of gold and the improvements in the strength of the rupee.

The decline in imports in 1976-77 was essentially due to a marked reduction in the imports of food and fertilisers partly offset by increases in the value of the imports of raw cotton, vegetable oils and fats etc. The growth in exports was on account of iron and steel, engineering goods, cotton fabrics and apparel, leather, fish, tea, iron ore, oil cakes etc. On the other hand, exports of sugar and jute manufactures suffered a sharp decline

The gross inflow of external assistance increased from 1973-74 to 1975-76 after touching its lowest level in 1972-73. In 1976-77, it declined again to Rs. 1747 crores from Rs 1839 crores in the previous year Similarly, the inflow of external assistance net of debt servicing declined from Rs 1153 crores in 1975-76 to Rs 986 croresin 1976-77 Of late there has been some further improvement in the quality of assistance provided by some of the donor countries, e g U K, Federal Republic of Germany, Netherlands, Sweden, Norway, Denmark and Canada □

Panchayati Raj

(*Contd from page* 17)

development and block development plans could be meaningfully woven into the framework of rural district development plans so that there is planning from below There is need for both vertical and horizontal coordination of integrated rural community development and area development plans at the same and different levels The formulation of integrated rural community development and area development plans for each district should be the main responsibility of the Board which collects information on the real needs and problems of the rural people, the existing programmes, schemes, projects etc. and prepares future programmes In other words, the Board has to provide technical personnel in the fields of development and welfare programmes at the disposal of P R bodies They have to provide legal, administrative, technical and financial guidance whenever they called for In short, the Board is a mini-national planning commission at the district level Besides, the Board would provide continuous consultancy services of its development and welfare personnel and planning aids such as compilation of information, questionnaire for conducting evaluation studies and socio-economic surveys, models of plans, programme, projects, schemes etc. But the final responsibility for the approval of rural development and welfare programmes would rest with the non-officials of panchayati raj bodies After the approval of the development programmes, panchayati raj bodies should undertake the responsibility of implementation of development and welfare programmes within the rural district. The aim is to secure maximum community participation in plan formulation and plan implementation in order to ensure mobilisation of financial resources required for implementation of the programmes All these measures would go a long way in making the Panchayati raj bodies responsible for rural district planning and development and also the integrated rural community development and area development planning a reality. □

Quotation Box

We are not going to put anyone out of job; all that is intended is that vacant positions will not be filled up.

—Morarji Desai

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The bright Divali like lights in the places of the rich have to be dimmed a little to provide light for the huts of the poor

—Chandra Shekhar

*

When I appear in public people expect me to neigh, grind my teeth, paw the ground and swish my tail—none of which is easy.

—Princess Anne

*

We live now in a world whose conflicts cannot with any certainty be geographically contained; War in Southern Africa, and a world racial crisis which will be its hand maiden, will involve us all.

—Shridath Ramphal

*

I personally think he Mr. Richard Nixon) did violate the law, that he committed impeachable offences. But I don't think he thinks he did.

—Jimmy Carter

*

In the life of the human spirit, words are action

—Jimmy Carter

A conscious effort to bring them (freezing of present prices) down will amount to freezing the agonies of the common man.

—Mohan Dharia

A friend who recently saw a circus in Peking said the biggest mirth was aroused by the Russian type bears. Every time a bear was given a sugar-lump in reward for successful performance of a trick, the Chinese guide nudged my friend and quipped: "Material incentives,"

—David Bonavia

In Far Eastern Economic Review

*

Political violence is gnawing at both the attempt to save democracy in Italy and the attempt to create it in Spain.

—The Economist

Yojana Quiz

1. In the year 1500 AD who declared himself as "Lord of the Conquest, navigation and commerce of India, Ethiopia, Arabia and Persia"?
2. What are the Horse Latitudes?
3. What is a Peppercorn Rent?
4. What does Habeas Corpus mean?
5. Why is it easier to roll a barrel than to pull it along the road?
6. Who are the founders of
   (i) Jainism
   (ii) The Parsi religion
   (iii) Taoism
7. Where are the following Public Sector undertakings:
   (a) Bharat Heavy Plate and Vessels Ltd.
   (b) Bharat Opthalmic Glass Ltd
   (c) Hindustan Copper Ltd
   (d) Cotton Corporation of India
   (e) Hindustan Cables Ltd.
8. What are the games associated with
   (a) Tee
   (b) Pot
   (c) Love all
   (d) Chukkar
9. Who won the Battle of Talikota?
10. Why a petrol fire cannot be extinguished by pouring water over it?
11. A glass tumbler is filled to the brim with water and a piece of ice is floating on it. As the ice melts, will the water overflow or not?

ANSWERS

1 King Emanuel of Portugal

2 Regions of calm in the Atlantic, are so called, it is said, because in the old days of sailing-ships, vessels were often becalmed here, and had to throw overboard any horses they were carrying because the fresh water on board was almost finished.

3 A peppercorn rent is the name given to a rent so small as to be merely nominal, intended not to bring profit to the owner, but simply to show the tenants recognition of the fact that he is a tenant and not the owner.

4 Habeas Corpus is the Latin for "Produce the body". This clause makes it unlawful for anyone to be held, a prisoner except on a charge for which he has been or is about to be tried. If he is so held, an application can be made to the High Court of Justice for an order, requiring him to be brought before the court, for a discussion as to the legality of his detention This had been set up mainly to safeguard against tyrany of the Government

5 The rolling force of friction is less than the dynamic force of friction. Hence it is easier to roll a barrel than to pull it along

6. (i) Mahavira
   (ii) Zoraster
   (iii) Lao-tzu

7 (a) Visakhapatnam
  (b) Durgapur
  (c) Calcutta
  (d) New Delhi
  (e) Rupnarainpur

8 (a) Golf
  (b) Billiards
  (c) Badminton
  (d) Polo

9. The combined armies of Bahmani Sultans of Deccan defeated the forces of Vijaynagar at Talikota in 1965 AD The defeat sealed the fortunes of the Vijaynagar kingdom.

10. Water being heavier, slips down and petrol will rise to the surface and continue to burn as before. Hence water cannot be used for extinguishing petrol fire

11 The level of water in the glass tumbler will remain unchanged. According to Archimede's principle, the weight of floating ice is equal to the weight of the water displaced by it Thus the volume of the water obtained by the melting of ice is exactly equal to the volume of the displaced water.

Contd. from page 23)

According to Samachar, May 20, 977, it has been proposed to start a cheme on integrated soil and water onservation for important Himılayan river catchments in Himachal ›radesh, West Bengal and Sikkim

A provision of Rs. 20 million ıas been suggested on the basis of 0 per cent loan and 50 per cent grant or the year 1977-78

The scheme is characterised as nulti-disciplined comprising afforesıtion, pasture development, agriultural crops. In additional there vill be soil and water conversation neasures on agricultural fields.

The States will set up multiısciplinary authorities for the cathment area to look after planning ınd execution of the projects. These uthorities will be made responsible or coordinating and monitoring of vorks connected with the soil conervation agricultural and non-agriultural lands in selected river basins ı these Himalayan tracts.

Besides, the above measures ceraın other steps are also needed to ave the rapidly deteriorating ecoomy of the shifting cultivators, for xample pilot projects could be tarted to educate the tribals in etter methods of land husbandry and agriculture. The pilot projects can be a successful venture if (i) there are dedicated workers to motivate the change and (2) there is no uniform pattern for the country as a whole, and adequate care is taken of the environment of differences of different regions.

Following provisions have been made in the Fifth Five Year Plan to solve Jhum problems of North East area:

1. Land should be terraced in the villages and all infrastructural facilities should be provided for resettling the jhumias.
2. Plantations, for which this area is suitable, should be developed with the help of Jhumias as labour. These should be later handed over to them as identifiable blocks in the plantations as their own property. The Forest Corporation should have an over all control on these plantations.
3. Horticultural units should be developed on the same pattern as the plantation with an added advantage of fruit processing and preserving units.
4. Castor linked up with horticulture should be developed. A provision of Rs. 250 million has been made in the Fifth Plan for the various States to prevent jhum cultivation and to expedite proper development of this zone. The Forest Department will afforest the jhum areas thus saved on sharing basis for which agreement has been reached with the District Councils which control these areas.
5. Wastelands, panchayat lands and degraded forests in the undemarcated forests near populous areas should be earmarked for the mixed plantations programmes. These areas should be planted intensively with quick growing species of trees.
6. Lops and tops and shaving should not be left in the forests to become fire hazard. Instead they should be brought out to some depots near habitation. Such fuel should be supplied to the people living in the neighbouring villages at cost price. This will persuade these people not to fell trees illegally in the forests. It will also add to the supply of fuel wood to the people. □

(*Contd from page* 11)

Railway Budget at a Glance

(Rs. crores)

	Actuals 1975-76	Budget Estimates 1976-77	Revised Estimate 1976-77	Budget Estimate 1977-78 (as presented in March)	Budget Estimate 1977-78 (as presented in June)
Gross Traffic Receipts	1767 01	1955.82	1987.55	2091.44	2110.24
Ordinary Revenue Working Expenses (Net), e. after taking credit for recoveries	1470 17	1551.42	1548.23	1635.76	1648.74
Appropriation to Depreciation Reserve Fund from Revenue	115 00	135.00	135 00	140.00	140.00
Appropriation to Pension Fund	24.50	30.00	35.00	40.00	40.00
Net Miscellaneous Expenditure (including cost of works charged to Revenue)	20.31	22.82	22.35	23.67	23.68
Total:	1629.98	1739.24	1740.58	1839.43	1852.42
Net Railway Revenue	137 03	216 58	246.97	252.01	257.82
Dividend to General Revenues	198 14	207.60	211.30	225.56	225.32
Net Surplus (+)/Shortfall (—)	—61 11	+8.98	+35.67	+26.45	+32.50
Operating Ratio	91 1%	87.7%	86.4%	86 8%	86.6%

erambur, Madras.

A detailed review of the plan ıtlay for 1977-78 was conducted y the Ministry of Railways and the linistry of Finance and, as a meaıre of economy, the plan outlay ıs been reduced by Rs. 21 crores ». from Rs. 501 crores to Rs. 480 'ores including provision of Rs. 10 crores for the Metropolitan Transport Projects. The working capital requirement of the Production Units in respect of export orders amounting to Rs. 2.80 crores has been retained. Thus, the total revised plan outlay as presented in the final budget amounts to Rs. 482.80 crores against the interim budget outlay of Rs. 503.80 crores. The reduction is mainly under Rolling Stock (Rs. 9.39 crores), Traffic facilities (Rs. 5 crores), Investment in Road Services (Rs 2 crores), ad Track Renewals, Bridge Works. Workshops, Signalling & Interlocking Works (Rs. 1 crore each). □

Staging a
talented performance
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Books

Economic Policy and Administration

Poverty of Policy *by R.K. Paranjpe; Published by Somaiya Publications Pvt Ltd., 172, Dadar, Bombay-400014; Pages 387; Price Rs 85.*

POVERTY of Policy is a collection of essays on Economic Policy and Administration These essays were written and the book was planned before the emergency was declared These essays, therefore, have a relevance in interpreting the situation prevailing before the emergency and the author's observations are often thought provoking. In his essays the author has criticised several policy measures adopted by the Government of India. Among the criticism voiced by Dr. Paranjpe may be included lack of consistency, shortsightedness and adhocism resulting in drift in policy from one situation to another There is a lack f consistency in controls which have changed according to pressure of time rather than based on any long term plan or perspective. He also notes the wavering of Government's attitude towards the ICS, which he regards "as a white-elephant which the country could ill-afford."

He is critical of the hypocrisy of the Indian elite, who support policies largely benefitting the vested interests He also denounces the 'oral radicalism' which considers every extension of state control with socialism The author adopts controversial postures on various issues, which make the reading both absorbing and thought provoking

On the efficiency of public sector, he admits that the neglect of profits in the public sector in India had resulted in the past in mis-management and waste. On the implementation of MRTP Act he seeks to answer the critics but admits that there is much scope for improvement He, however, throughout makes special pleading for it, due to his association with the Commission.

A full section has been devoted to the problem of administrative changes and these include, inter-alia, the plan implementation, the political rights of public sector employees, administrative reforms and the controversy relating to the commitment of civil servants He is unhappy over the "proliferation of regulative instruments, which almost operate like tollgates, where funds can be collected by corrupt administration as well as political personnel. The demoralising effect on administrative function of acts such as the collection of political funds through "clandestine channels", and the "delays and indifference to the requirements of ordinary citizens".

His attitude and thinking towards political appointments is inconsistent At one place he condemns it on the ground that it can easily open the floodgate of nepotism. At another place he justifies political appointments by the Minister to assist him in his tasks

Considering as a whole, the main interest in these essays would seem to lie not in the originality of ideas but in the forthright manner in which they are often expressed. The author's provocative and challanging position on many issues make the reader to dissent vigorously and debate the points raised. The controversy raised on India's licensing policy in these pages would continue to be debated.

This is a readable book. Moreover, with the change in the Government, there is visible change in the thinking of the policy makers particularly in the field of economic policy formulation and administration The areas, where change is iminent, include the role of public and private sector, industrial licencing, plan priority and implementation, administration reform, etc. This volume, in addition to giving details of the pre-emergency policy framework, lays bare the shortcomings of the existing policy measures laid down in various acts/rules and regulations, and in the realm of implementation. It is a must for policy makers and administrators

—**Kamla Prasad**

Capital Management

Capital Budgeting in India *by L S. Porwal; Sultan Chand & Sons; Pages 95; Price 30*

THE BOOK under review is an empirical study of the organizational, qualitative, quantitative, behavioural and control aspects of capital budgeting in large private sector manufacturing companies in India. It includes a comparison of capital budgeting at home with the practice obtaining in the United States.

Divided into seven convenient chapters, the study begins with the objectives, scope, methodology and limitations. This is followed by an account of the studies made in India and England. The author, however, has not spelt out exactly what are the regulations in India and how they affect Indian industries.

Other chapters deal with the financial objectives, planning and organisation of capital investment proposals in large manufacturing companies. Techniques of economic evaluation of capital expenditure projects, sources of funds and techniques of economic justification and other aspects such as capital rationing, behavioural problems, project risk and control of capital expenditure research are some of the other topics covered in the book.

The author says that his study has revealed that there is a wide gap between the theory on capital budgeting and industry practice. He expresses the view that mere rule of thumb practices are most likely to lead the industry to misleading and unfair decisions. But if decisions are made after a thorough quantitative and qualitative analysis, then it would lead to better capital expenditure management and also help achieve higher profitability and growth.

The two year old figures given in the book about profit, growth and capital are of little practical value at present. The author could have added a chapter or two on the gains in the business field during the emergency, and made the study more meaningful and topical. Still the book may be useful to economists and students of management.

—**Arun Sharma**

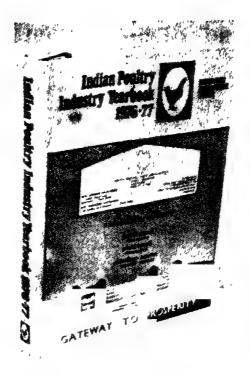
An Indispensable Year Book

Indian Poultry Industry Year Book 1976-77 *by J.N. Panda, D.N. Biswas, A P. Sachdhev, A William Jasper; Published by Mrs. S.P.* 34, *New Rohtak Road; New Delhi*-110005, *Pages* 424+*xxviii, Price Rs.* 50.00

DURING the last decade excellent progress has been made in the field of poultry keeping in this country. Of course, there have been ups and downs. Of late the importance of poultry keeping in the improvement of rural economy and as a means of self-employment is well recognised.

"India Poultry Industry Year Book"—1976-77" is the third edition. The first edition was brought out in 1972. This itself proves the utility and value of the publication for poultry keepers. The publisher needs to be congratulated for providing excellent service to the poultry keepers by updating and filling up the lacunae existing in the earlier editions.

The publication is dealt with in 5 sections. Section I is further divided into 5 chapters. In the first chapter, a general survey of the poultry industry has been made. Chapter II, "Statistics", gives valuable data on various aspects of poultry keeping. Chapter III deals with review of 9 topics, viz. Rural Development through Poultry Raising, Institutional Credit for Poultry, Financing Poultry Farmers, Prospects of Egg Exports, The Developing Broiler Industry, Duck Farming, Poultry Farmer and his Marketing Challenges, Nutritive Value of Egg, and Guide Taxation on Poultry. The next 2 Chapters on Management Practices and Poultry Diseases, as in the earlier edition, are very informative, but have been updated and dealt with in greater length.

In this section, the publisher, in future editions, may consider the inclusion of one review article on one aspect of poultry keeping e.g. breeding, feeding and diseases, based on research work conducted in the country in that field and indicating the existing lacunae, and future line of work. A chapter on preparation of feed by small farmers themselves with the available local feeds may be considered for inclusion in the publication

Sections II, III and IV 'Technic 'Directory' and 'Who's Who' very informative and have b updated.

A new feature of this editior the International Section This widened the scope of this publ tion. The publisher has given formation in brief about pou organizations and statistics on and broiler production. It wo have been better if the author l given detailed information ab poultry industries, their problems advances in the underdevelope countries in South-East Asia, Mid East and Africa.

This book of 424 pages is v well-produced. It has already come an indispensable item the shelves of all those interested poultry keeping, irrespective of fact whether they are actual poul keepers, students, research work or those working in poultry indus

R. R. Lokesh

Industrial Law

Elements of Industrial Law *by N. D. Kapoor ; Published by Sultan Chand & Sons; Pages* 155+*XIII; Price Rs* 10.

LITTLE about lot or lot about little are the two patterns in vogue today in the world of book-writing on any subject, particularly law. The book under-review obviously falls under the former category in as much as the author adopts the 'touch and go' approach in describing the various vital industrial laws. While The Factories act, 1948, The Industrial Disputes Act, 1947, The Workmen's Compensation Act, 1923, The Payment of Wages Act, 1936, The Minimum Wages Act, 1948, The Trade Unions Act, 1926 and the Employees' State Insurance Act form the first Part; The Industrial Employment (Standing Orders) Act, 1946, The Apprentices Act, 1961, The Collection of Statistics Act, 1953, the Employees' Provident Funds and Family Pension Act, 1952, The Payment of Bonus Act, 1965 and The Maternity Benefit Act, 1961 form the second Part of the publication.

At the end of the book is an Appendix of the latest Amendments i.e. amendments effected in the year 1976 vide the Industrial disputes (Amendment) Act, 1976, The Payment of Bonus (Amendment) Act, 1976,The Payment of Wages (Amendment) Act, 1976, The Employees' State Insurance (Amendment) Act, 1976 and the Workmen's Compensation (Amendment) Act, 1976. At the end of each Chapter, except the first one, are given the 'test questions', probably for the benefit of students preparing for various examinations Here and there, old case law is also cited as per the convenience of the author, rather than the call of the subject concerned.

Surprisingly, the second part of the book is titled as "Elements of Mercantile Law". Why so? Nowhere in the book one finds a reference which should have provoked this title. Besides, the absence of any mention about such Central laws as Contract Labour (Abolition and Regulation) Act and Payment of Gratuity Act is conspicuous in itself.

Nonetheless, the publication is likely to become popular amongst such 'students' who are on the lo kout for such publications and for whom it apparently is designed

Pawan Chaudhary

Development Notes

Fertilisers on Credit for Farmers

Chemical fertilisers will be supplied on credit to farmers in Jammu and Kashmir during the current kharif

The facility will not, however, be available to those who have defaulted in the repayment of fertiliser loans advanced to them during the last two years or to those who have such credit facilities available by virtue of being members of one or more cooperative institutions

The state government has adopted a target of distributing 19,200 tonnes of nitrogenous and about 5000 tonnes of non-nitrogenous fertilisers during the current kharif which, incidentally, is facing rough *weather condition on account* of persisting low temperature.

The state government has adopted a foodgrains production target of 11 60 lakh tonnes for the current year The major thrust will be in the area of rice production where a target of 5 50 lakh tonnes has been adopted Among other measures, 2 05 lakh hectares are proposed to be brought under the high-yielding varieties of paddy

The high-yielding variety of maize is proposed to be cultivated on 35,000 hectares The farmers have been given the option of repaying fertiliser loans in kind by the end of the current calendar year

CMFRI'S Fish Culture Project

The Central Marine Fisheries Research Institute, Ernakulam has taken up fish culture in one acre farm at Mulky, 35 km north of Mangalore as part of its programme for culture of Sillage Sihama fish

In a preliminary experiment, it was possible to produce about 300 kg per hectare in a period of five months Culture of "sand whiting" was initiated in 1973-74 and at the end of four months the average size attained was 20 cm weighing 80 kg in a small pond

Sand whiting is a food which has good export value It commands a high price throughout the year, particularly during the monsoon season. The flesh of the fish is used in various preparations of human consumption and its head is used as canine fish

The entire demand in the country which is increasing at present is met by indigenous production only from the estuarine catches throughout the year The estimated yearly catch at Mangalore is about 10 tonnes Its market price at Mangalore is about Rs 12 per kg

A pilot project on sand whiting culture has been suggested for the CMFRI The project envisages collection of fry and fingerlings from various estuaries, stocking these in specially constructed ponds, and staggering of stocking in order to ensure pre and post monsoon harvest The project will offer its culture by adopting scientific methods and offer self-employment for the coastal people It is proposed to construct about 15 *ponds in three hectares farm* in the coastal area where stocking of fingerlings will be at the rate of 30,000 per hectare twice a year to harvest crop estimated six tonnes

Walnuts Earn Foreign Exchange

Kashmir walnuts are coming up as an important foreign exchange earner Foreign exchange totalling Rs 3 45 crore was earned during the first nine months of the last financial year by the export of walnuts from the state i e Rs 28 lakh more than the total foreign exchange earned from this source during 1975-76.

The Central government has launched a scheme to promote the production of walnuts in the state under which 50 per cent subsidy is provided to growers on the cost of plant material and fencing

The area brought under walnut cultivation during the last four years is placed at over 5,500 acres, raising the total area under walnut trees in the state to over 30,000 acres. An additional area of 3,000 acres is being brought under walnut cultivation during the current year

Meanwhile, Kashmir is all set to export knock-down furniture to Gulf countries with the assistance of Commonwealth Fund for Technical Cooperation (CFTC) under which new designs and prototypes are being introduced at the government owned joinery mill at Pampore in the Kashmir Valley.

Biggest PVC Plant For Baroda

The Indian Petrochemicals Corporation Limited, a Government of India undertaking, will be setting up in its integrated complex in Baroda a large-sized polyvinyl chloride (PVC) plant with a capacity of 55,000 tonnes a year This will be the country's biggest PVC plant. The proposal was expected to be approved shortly and construction would be over in a few years time.

The IPCL's large-scale integrated complex for manufacture of three polymers—low density polyethylene, polypropylene, and polybutadiene rubber—was nearing completion.

On reaching full capacity, the Baroda complex will make available 50,000 tonnes of low density polyethylene in collaboration with AED Chimie of France, 50,000 tonnes of polypropylene in collaboration with Monti Edison of Italy among many other chemical, rubber and fibre intermediate products.

IDA Credit For MP

Agricultural extension and research in Madhya Pradesh will be strengthened with a $10-million (approximately Rs. 9 crores) credit from the International Development Association (IDA), an affiliate of the World Bank

The $ 20 9-million (about Rs 18 8 crores) project is directed towards achieving, in the short term sustained growth in agricultural output, particularly foodgrains in 15 of the 45 administrative districts of Madhya Pradesh covering about seven million hectares of cropped land

The project will emphasize the consolidation and strengthening of the State's agricultural extension services and help reorient adaptive agricultural research to provide farmers, on a regular systematic basis, with advance on farming practices having an immediate impact on yields The project will be executed over a five-year period

The IDA credit to India is for a term of 50 years, including 10 years' grace and is also interest free

Textile Machinery For Tanzania

The Textile Machinery Manufacturers' Association and the National Textile Corporation of Tanzania (Texco) have finalised an agreement for the supply of machinery and technical services from India on a turn-key basis The deal will fetch Rs 8 5 crores to India.

The agreement provides for the establishment of a turn-key cotton spinning mill complex valued at over Rs. 10 crore. The special feature of this order is that the consortium of Indian textile machinery exporters will be aided by a consortium of Indian banks under the leadership of the IDBI.

The spinning plant will have a capacity of 33,900 spindles and will produce 1 8 million kg of combed 40s (half of which doubled) and 1 2 million kg of 20s carded per annum. The mill would be fully air-conditioned with complete plant and equipment for electrification being supplied also from India.

Tractor-Mounted Reaper Binder

A tractor-mounted reaper binder with 100 per cent indigenous components has been developed by a research engineer of the Punjab Agricultural University.

While the threshing process is wholly mechanised in the Punjab, the cutting of the wheat crop is mostly done manually This delays cutting because in spite of a huge influx of agricultural workers from Bihar and U.P shortage of labour during harvesting season continues. The entirely indigenous reaper developed by the PAU is operated with a 30 hp. tractor On an average it can reap 0.5 to 0 6 acre per hour The binder needs two persons for its operation including the tractor driver Its estimated cost is Rs. 10,000.

At present there are 400 combines, tractor propelled or self-propelled, working in the Punjab But these machines can hardly harvest two per cent of the crop. Moreover with these combines, the farmers cannot get *bhusha* which they need throughout the year for their cattle.

The new reaper binder makes *bhusha* also available in the same way as through manual cutting.

Regd. No. D(D)-

Printed at Universal Advertisers E/2, Jhandewalan Extn., New Delhi-110055 and Published by the Director

VOL XXI/12 15-31 July 1977

80 Paise

BLOOMING DESERT

YOJANA

Volume XXI Number 12
New Delhi
15 July 1977
24 Asadha, 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu

Yojana seeks to carry the message of the Plan, but is not restricted to expressing the official point of view

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Editorial Office : Yojana Bhavan, Parliament Street, New Delhi-110001 **Telegraphic Address** : Yojana, New Delhi, **Telephones** : 383655, 387910, 385481, extensions 402 and 420, **Circulation** : Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription ; Annual—Rs. 18, Two years—Rs. 30. Three years—Rs. 42, Foreign Subscriptions : One year—£2.70 or $5.50. Two Years—£4.50 or $9.00. Three Years—£6.30 or $12.50 Single copy—twelve pennies or $0.25.

IN THIS ISSUE

DESIGN OF DAMS

A Status of India's Self Sufficiency

Y. K. MURTHY

DEVELOPMENT of water resources and water conservation techniques dates back to the period when civilization perhaps itself begins Even before independence, India was placed in a position of eminence in the field of irrigation development by its achievements in design and construction of various types of hydraulic structures. An outstanding example of an early successful attempt of harnessing the rivers for irrigation is the Grand Anicut across the Cauvery built in second century A.D

Construction of dams for creating storage reservoirs is an important development activity pursued all over the world The building of dams is as old as recorded history of mankind Traces of ancient dams bear witness to the achievements of civilization which have long passed off

Storage structures on rivers began coming into being in India, with the construction of the 60 m high Khadakwasla dam in 1869-1879 and and 53 m high Periyar Dam, completed in 1887. Understandably enough the early storage structures are located in the Central and Southern parts of the country, the reason is that the rivers there are not perennial and, therefore, there is need for storage and regulated utilisation, also the foundation of the structures are near ideal

Irrigation projects completed till Independence catered to an area of only 10 million hectares The installed hydro-power in 1947 stood at 2 3 MKW After the advent of Independence in 1947, water resources utilisation was accepted as one of the essential requirements for the overall economic development of the country. It found its useful place in the nation's economy and got a fuller orientation.

The post-Independence period developed irrigation potential to 30 4 m hectares and increased hydropower potential to 8.44 million KW till 1975-76. Three fourths of the water resources utilization projects constructed during this period are based on storage. One hundred fifty masonry concrete dams and three hundred seventy earth/rockfill dams were taken up and many were completed in this period.

In the field of masonry/concrete dams, some of the major achievements made during the period include the design and construction of Bhakra (H P.), Tungabhandra (Karnataka), Rihand (U P.), Nagarjunasagar (A P), Koyna (Maharashtra) and many others. As regards earth/rockfill dams, Hirakud (Orissa) Gangapur and Girna (Maharashtra, Ramganga (U P), Beas (H P), and many other stand as monuments of development

Rapid advances in the field of soil and rock mechanics and evolution of heavy equipments to handle large volumes of concrete/earth work have inspired the construction of dams to heights and also on sites which would have been considered impossible earlier. The stage of dependence where consultancy of western experts was sought has practically vanished and a sense of self-confidence and self-reliance has taken place amongst the engineers of the country India today ranks third in the world among countries having the maximum number of dams While the construction methods and its improvements in the designs techniques are in many cases unique and rewarding, the shapes of Indian dams may not offer a large variety The country has moved forward on the traditional base, introduced modernisation in its construction techniques, and yet retained a synthetic balance between social values and economic growth

Development in Designs

Safety and economy are the principal elements in the design and construction of dams. As related to other considerations, such as selection of sites, competency of suitability of materials, hydraulic or energy capacities or operation safety and economy are the controlling factors. Other factors, although important are secondary in the design and building of a dam.

Having satisfied safety criteria, problems of economy are closely associated with benefits, operation and maintenance. Design adjustments in the dam site, accessibility, simplicity and magnitude of the dam, as well as capacities and fractional operation of facilities all tending to obtain the least cost for the greatest benefits--form the basic complex process in the economical design and construction of dams

Masonry/Concrete Dams

Earlier dams were designed with triangular profile and no provision was made for the release of uplift as is seen in the Walwham Dam (1916), Shivwatu Dam (1920) and Mulshi Dam (1929) of Maharashtra. The provision of drainage in the foundations and the body of the dam to reduce uplift pressures were provided in the Indian dams only after 1920, when similar provisions were attempted in structures abroad. The very early dams had near ideal foundation conditions, their design did not take into account any uplift forces, nor had they any special foundation treatment or provision of drainage system Consequently, the profiles of such dams were slender compared to modern gravity dams

Continuous research, though, instrumentation and observation and confidence borne out of experience, keep pushing the frontiers of knowledge Observations on uplift in a number of dams where the means for its measurements were incorporated its existence. Hence, the concept of safety dictates that a reasonable allowance be made against uplicft forces. The earlier dams were designed by keeping the resultant within the middle third, which was known as 'Middle Third Rule'. The formulae and practices for calculating the stresses in the interior of gravity dam, based on the methods developed by U S B R was adjusted in the Indian designs much later. Then developments and advance in the technique of dam designs helped in proper zoning of material in the am.

Safety against sliding is an important requirement in the design of dams Dams which have excellent

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Shri Murthy is Chairman Central Water Commission.

foundation conditions do not present any such problems.

With the mounting economic pressure for executing dams for the utilisation of water resources on rather an as-is-where-is basis, sites now have thin foundation suitably treated Excellent sites for dam construction getting almost exhausted, we come across dam sites where we encounter with numerous foundation problems. A thorough knowledge of these problems and foundation weaknesses are necessary for a safe design The criteria for checking the safety of the dams against sliding by sliding factor have now given way to the criteria of adequate shear friction factor of safety Some of the dams being built in India like Srisailam Dam, Kadana Dam, Kallada, Barna, Iddiki and Ranapratapsagar (to mention a few) had very complex foundation problems with innumerable faults and shear zones where sliding resistance of the dam was an important factor to be considered in the design of the dam Remedial measures such as having concrete drifts intercepting the weak zones below the foundation thrust blocks immediately downstream of the dam and use of post tensioned cables were adopted.

The trial load method of analysis for the first time was applied to the designs of Bhakra Dam and recently to the Idikki Arch Dam The availability of electronic computers has enabled application of finite element technique to special problems encountered currently This method has been employed in determining the stresses in the foundation of Salal Dam, where complex geological conditions exist, in analysing the stresses to determine the problems causes of cracks in the konar and Hirakud Dams The awareness and knowledge of new tools has come to stay and there is a wider appreciation of the need for more elaborate, thorough and detailed theoretical analysis.

The earthquake in Koyna paved the way for study of seismicity in relation to storage reservoirs and created a new awareness for a seismic design involving hydro dynamic analysis.

Fundamentally the problems of earthquake design reduce to those of the design against lateral forces which result from the acceleration of the structural mass. For dams above 100 m high, the response spectrum method is used for the design of the dam. One of the major problems is that of selection of the value of seismic co-efficient to be used for design purposes. The value of seismic co-efficient to be adopted in the design of various river valley projects are now recommended by a Committee of Experts consisting of seismologists, earthquake engineering specialists, engineering geologists and dam design engineers. The seismic co-efficient is evaluated by taking into consideration various geolectonic factors, incidence of earthquake, type of dam and the dam site geology

There has been a growing feeling that the pseudo static approach which in essence is a static analysis is not logical as the force induced is a dynamic one In case of Salal Dam (J&K), in view of the location in a complex geological foundation and a highly seismic environment, a detailed study of responce of the structure has been carried out by analytical and mathematical methods. By those studies, the damage potential by way of deformation that the structures undergo has been evaluated and taken into consideration in finalising the design

The Himalayan geology with its complex tectonics, faults and fractures has been posing new design problem in Northern India. Sediment rock formation in Rajasthan, Madhya Pradesh, Gujarat and elsewhere in the country with inter layered weak planes, faults and shears present varied problems of stability The science of rock mechanics and its application to dam engineering has assumed an eminent place in the present day design.

Salal Dam, Jakham Dam, Kadana Dam are some of the few examples where extensive foundation studies and design analysis have been carried out backed by extensive in situ field tests

The objectives to be achieved in the treatment of the foundation of a concrete dam are water tightness, deformability and stability Compared to soils, anistrophy in rock is more complex because of the many directions of the joint/fissures etc and varying permeasibility. Extensive grouting of the foundation to block out possible channels of seepage is also attempted All rocks are not necessarily groutable to the required degree with conventional cement grout mix. The pressures, the stages of grouting, the spacing of grout holes, type and ratio of grout mixes offer scope for continued research backed by field experiences Reversible and irreversible deformation occurs in rocks. Stability of dam pre-supposes that the deformation is equal over the entire contact surface. There are some cases where rock width may not be adequate for the dam base to sit fully. In such cases, the design techniques are backed by photoelastic model tests.

Material technology also have advanced considerably. Earlier we had masonry dams like Bhandardara Dam, Krishna Raja Sagar Dams built in masonry with hydraulic line mortar. Benefits and availability of new types of cement, admixtures, changes in methods of selection and grading of aggregates, new practices in proportioning, mixing, placing and curing of mass concrete in dams of Western countries had a considerable and significant influance on concrete and mortar design mixes for masonry dams in India

Stone masonry in the world's highest masonry dam at Nagarjunasagar, Ruble concrete in Koyna, colcrete in coffer dams of Srisailam are some examples of new grounds in art of dam construction

There are number of major achievements in the field of dams in the post Independence era. They stand as proud symbols of the studies the country has made The country has moved forward, introduced modernisation in design and construction techniques

Advances in soil mechanics and general earth work engineering during the last fifty years together with developments in hydro geology have inspired the construction of earth and rockfill dams to heights and on sites which would have been considered impossible by earlier generation of engineers Further more, the great strides in recent years in the evolution of specialised earthmoving equipments have often made construction of such dams highly economic. Growing confidence in analysis and technique improvements in earth excavation, hauling plants and rapid reduction in the number of sites suitable for construction of gravity dams necessitate progress in the construction of major earth rockfill dams to continne unabated

As time advanced, changes and requirements in the methods of investigations, testing , design and construction have been taking places Accordingly, the design methods are modified keeping a constant tough with the changes taking place from time to time.

Some of the most important problems of earth and rockfill dam designs are e.g. selection of shear strength parametres for construction materials, zoning, provision of seepage control and drainage measures in the dam a

well as in the foundation, design of slope protection, liquefaction of loose pervious foundations, accounting for seismic forces and instrumentation and inter protection of proto type behaviour of dams.

Earlier shear strength parametres were chosen on the basis of direct shear treatments. With the advent of triaxial method of testing soils and rocks, it has now become possible to take into consideration the effect of pore pressures and these evolve an effective stress method of analysis

Zoning of dam is an important aspect of dam design for providing esistance to the progressive erosion lue to leaks and cracks caused by lifferential settlement, particularly n earthquake regions, and also from he point of providing greater stability o the dam. Advantage has been aken on the wide range of construcion materials available and adequate ning provided in most of the dams, xample. Hirakud, Ukai etc

Seepage control measures are esntial to protect a dam from any ndesirable and dangerous effects hese measures reduce the risk of ilure from unstability of slope, undation heave or from piping y erosion or by combined effect f all these Enough confidence has een gained to adopt concrete iaphragms for foundation treatment Jkai Dam, Tenughat and Obra ams are some of the examples herein this method has been adoped

To accelerate the consolidation rocess, vertical sand drains were sed in the clayey foundation of enughat Dam. For rapid disipation of pore pressures, new rainage arrangements consisting of orizontal filters are provided in the embankments in Tawa and Tenughat Dams.

Another interesting problem met with in recent times is the possibility of liquefaction of loose alluvial foundation at Ukai, Obra and Tenughat which are located in seismic areas. New experiences have been gained in this field following detailed study and testing of such foundations by blasting and other methods to find the necessiry or otherwise of compacting the foundation in order that they may not liquefy under action of an earthquake.

A good number of potential dam sites at favaourable locations have already been exhausted; new dam sites have to be located in difficult foundation conditions. The sites for many dams that are going to be taken up for construction fall in zones of high seismicity Construction of structures within areas of high seismicity and on a thick strata of saturated sandy or gravel desposits is considerably complicated.

Efforts are being made to establish a chain of seismological observations in all future reservoir sites located in seismically active zones

Instrumentation of dams and appurtenant works plays a vital role during and after the construction of a dam. Observations of proto type dam by means of instrumentation indicate their behaviour with respect to settlement, pore pressures, deflection, etc during various loading and operative conditions. Such observations have been a valuable guide for adopting new methods of design. An addition to the conventional methods of instrumentation is the use of slope indicaotr instrument for measuring deflection and movements in the dam and its foundatoin. Slope indicators have been installed at Ukai, Tenughat and Obra dams.

Sufficient experience has been gained by the Indian Engineers in the field of earth and rockfill dams. Beas Dam (115 m) and Ram Ganga Dam (125 m) are examples of high earth rockfill dams. There are ambitious plans to construct much higher rockfill dams with greater storage like Kishau Dam (252 m), Parvak Dam (180 m), Tehri Dam (260 m) etc.

Another interesting feature of the design is the provision of overflow on partially constructed earth dams. At Balimela Dam (70m) high, original plan of Colnstruction for closing the river gap in one season was not found practicable. Therefore, the dam was built partially. Extensive model studies were conducted to study the protective measures necessary to prevent damage to the partially constructed earth dam These showed a very uniform flow pattern and no damage was expected to the dam. As a further precaution however, the downstream rock toe of the dam was provided with 1 m thick mesh protection

Design of tailing dams in mining industry where the ore is generally melted to fine powder and chemicals are added to reclaim the concentrated ore by the flotation methods is another challage to soil Mechanics engineers. The disposal of tailings poses a health hazard if it is let down without proper retention or treatment. All these factors had to be kept in view for design of a number of tailing dams proposed in various projects like Bailadila Iron Ore Projcet, Kudremukh Iron Ore Project, Donimalani Iron Ore Project, Tatnagiri Aluminium Plant and Khetri Copper Project.

With the advent and progressive use of electronic computer, it is now possible to carry out extensive studies on various alternative dam sections and evolve safe and conomic designs in a short time.

With the sustained efforts and long experience of several dam projects in the country, it has been possible to develop confidence and self reliance in design and construction of both concrete/masonry and earth rockfill dams. The 170 m high arch dam at Idikki reflects new trends in the consiruction. The confidence and experience gained over these years, the resolute will and determined efforts are significant steps to march forward and reach greater and greater success. □

It is nice to be important

but

It is more important to be

nice.

Jnion Budget 1977-78

Yojana presents some expert Opinions on the Union Budget for the Year 1977-78

A Lucrative Budget

NANI A. PALKIWALA

JUDGING the merits r demerits of the budget, one iust, in fairness, be slow to ise, having regard to the cons-ts under which the budget has formulated The present Go-nent has not been writing on in slate. It has inherited various ies which are more onerous beneficial—a top heavy bureau-, vast commitments on projects i are in the process of imple-ation and which were based on ities lacking in both stability conomic wisdom. Further, the available to the Finance Minister conceiving and presenting the it was wholly inadequate, having d to the enormity and ty of the problems involved.

us consider, for a moment, dverse factors which constitute background of the budget Wholesale price index has been ing almost a continuous rise March, 1976, the index at nd of March '77 being 12 per higher than it was a year earlier, ey supply had increased by t 19 per cent in 1976-77 as st 10 5 per cent a year earlier. year, the rate of our economic th was less than 2 per cent, ly due to a decline in agricultural uction. The power position in ountry is most unsatisfactory. ently, there are power cuts in any as 10 States ranging from 50 per cent. The cost of money ound 16 per cent in India as against about 10 per cent abroad. The recession has not yet lifted. According to one estimate, 300 large and medium-scale units and ten thousand more units are sick. Labour unrest is on the increase. The investment market continues to be sluggish The number of job seekers on the registers of Employment Exchanges has doubled to 10 million in the last five years, while some 14 million are estimated to be unemployed. Against the heavy odds, the Finance Minister has tried to do a sincere and valiant job. The budget speech is the handy work of a knowledgeable and thoughtful personality. The Finance Minister has got his priorities right. After the nightmare of authoritarianism we have taken the first step towards an economic strategy which lays emphasis on both bread and liberty This budget is different from the past ones in some significant respects

First, Mr H M Patel is the first Finance Minister to have invited suggestions from the general public before adumbrating his budget proposals. It is in the fitness of things that the Janata Government should seek to associate the people with the formulation and implementation of fiscal, economic and other policies. It is the beginning of a truly participating democracy in India.

Secondly, there is a marked-shift of emphasis The primacy of agriculture is expressly spelt out and the national economy is to be so oriented as to develop irrigational facilities and rural infrastructure, in particular, roads, markets and supply of pure drinking water Thirdly, as against the deficit of 425 crores last year, the estimated deficit of 73 crores for the current year is the lowest since 1961-62 It is true that in the year 1969 70, the deficit was 46 crores. But in that year the total disbursements of the Central Government came to 5,500 crores as against 15,500 crores in the current budget. Thus, taking into account the fact that the governmental disbursements are almost three times what they were in 1969 70 and further taking into account the inflation during the last eight years, the deficit of 72 crores must be regarded on a fair comparison as lower than for 69 70. There is a strong determination underlying the budget to contain inflation at all costs. The negligible deficit and the continuance of the Compulsory Deposit Scheme for income-tax payers for further two years are parts of the anti-inflation strategy. Fourthly, the tax on capital gains is for the first time sought to be put on a rational basis. Lord Shawcross described the tax on capital gains as the greatest fraud in the history of fiscal legislation. He called it a fraud, because in times of inflation when a citizen sells his capital asset and gets in depreciated currency a higher amount than what he paid for it, he is asked to

pay tax on his so-called capital gains while in real terms if an allowance is made for the debasement of the currency, he may have actually made a loss.

The finance Minister has very wisely proposed three significant changes in the existing scheme of capital gains taxation. Under the current law an asset is required to be held for five years in order that it may be taxed at the effective lower rate applicable to long-term capital gains instead of being taxed at the full income-tax rate This period is now reduced to three years Secondly, under the existing law, the assessee is entitled to deduct from the sale proceeds the fair market value of the capital asset as on 1st January 1954 in place of the actual cost of acquisition Under the budget proposal, the assessee will be entitled to deduct the fair market value as on 1st January 1964 This is distinctly beneficial since inflation has steadily pushed up prices between 1954 and 1964 Thirdly and most importantly, capital gains would hereafter be exempted from tax if the proceeds of any asset sold whether house property, shares, jewellery or any other asset or reinvested within six months in shares, bank deposits, units of the Unit Trust or other specified assets This relief is subject to the fair condition that the new investment made out of the sale proceeds should be held for a period of at least three years

I would now like to come to the points on which the budget proposals seem to require re-consideration While the proposal to raise the minimum taxable limit for income-tax from Rs 8,000 to Rs 10,000 is most welcome, the proposal to increase the surcharge from 10 to 15 per cent is disquieting It is not so much the amount of the increase as the principle underlying the increase which is likely to arouse public anxiety. After 30 years of confiscatory taxation, the Finance Act last year, for the first time, brought personal income-tax and wealth tax down to reasonable levels. To increase the taxation again seems to be a retrograde step. The six fastest developing countries of Asia are those where the maximum rate of incometax does not exceed 50 per cent. Dr Ludwig Erhard, the author of the German Economic Miracle and Prof. Colin Clark have frequently expressed their firm conviction that the maximum rate of personal taxation should not exceed 50 per cent Prof Kaldon the eminent socialist said, these confiscatory tax rates apply only to a small minority of people who cannot avoid their incidence and their long run effect is bound to be wholly pernicious both in penalising the prospects of certain careers which are vital from the national point of view and in undermining public morality.

The wealth tax rates are proposed to be increased from the current assessment year I think it would be eminently desirable to apply the higher wealth tax rates from the next assessment year, that is, from the year 1978-79 The proposal to apply them from the current year is a reversal of the sound policy which was notified by Shri Morarji Desai himself when he was the Finance Minister that all changes, as far as possible should apply to income and wealth prospectively and not retrospectively The Finance Minister has proposed that investment allowance which is today available only to 32 industries should be extended to all industries except the low priority activities which are specified in a new schedule This is undoubtedly a change for the better

In order to promote scientific and technological self reliance the Finance Minister has provided for investment allowance at the higher rate of 35 per cent on machinery and plant installed for the manufacture of any article by using indigenous know-how Unfortunately, the benefit of the increased investment allowance is developed in only those laboratories which are owned or financed by the Government or public sector companies or universities It would be eminently desirable to extend this incentive also to cases where the know-how is developed by public limited companies in the private sector

The next provision which ca for comment is the very desi able proposal that when a sick u is absorbed by a profitable conce that concern should be allowed set off in respect of the carried forwa losses, a non-absorbed depreciati of the sick unit. Without such incentive, no healthy concern wou be interested in absorbing uni which are burdened by heavy los of past years. This reform, in o tax law, has been long overdu But proposed set off of the loss of the sick units is made condition upon recommendations and declar tions of certain authorities which a bound to cause unconscionable del and will rob the provision of muc of its utility and value

Since the structure of indire taxes has been amended pieceme at different times, it has, in man cases, failed to achieve the soci purposes of the Government Fo instance, after taking into accou the changes proposed to be made i this year's budget, the toal ta element in respect of commercia vehicles is as high as 58 per cent o the cost to the customer less taxes while in the case of cars and scooter it aggregates to about 52 per cent In other words, buses which constitut public transport for the masses and trucks which carry goods for al sections of society are taxed mor heavily than personal transport affect ing a relatively small and mor affluent section of society

Despite the above points on which there is room for divergent opinions the budget should prove to be a lucrative one. The developmente outlay of 8,852 crores of rupees, of which 30 per cent will be spent on agriculture and allied projects should lift the pall of the recession.

(Courtesy : A I R)

FINANCE MINISTER IS NO SANTA CLAUS

RAM PANDIT

AT LAST, the cat is out of the bag The long awaited Janata Party Budget has caused mixed feelings. The radical, have dubbed it as a Budget of the rich and the conservatives have found the proposals to be of greater benefit to the underdog than to the business community. There is no doubt about it that some relief has been given to the common man but the aspirations of the middle income group to get some relief have remained unfulfilled. The marginal buyer of durable products is the middle class man The TV set, transistor, radio, tape recorder, scooter and perhaps a car— will now be increasingly beyond his reach

General Excise duty on commodities not otherwise covered has been increased from 1 to 2%. This duty will normally be passed on to the consumer. However, a welcome feature of this excise duty is that it will apply to those units whose annual turnover exceeds Rs 30 lakhs. It is more rational to go by

annual turnover than by the number of workers employed, the criteria that was provided earlier. Indirect taxes, though regressive in nature, form an important part in our economy. As we get more industrialised, we should try and ensure that Government resorts to more and more indirect taxation, which is pregressive and demands sacrifices which are commensurate with the level of income.

The proposal to enhance the rate of wealth tax should be welcome to all those who want to establish a society which is based on greater economic and social justice As the Finance Minister himself pointed out, the first budget of the new Government sought "to accelerate the pace of economic progress and to distribute its fruits equitably under a framework of democracy and individual freedom "

What has perhaps caused great disappointment is the decision to continue the Compulsory Deposit Scheme for income-tax payers for another two years The middle income group is already paying a high income tax, contributes to Provident Fund, pays premium on Insurance Policies, etc This income group finds it increasingly difficult to save money to deposit in the Compulsory Deposit Scheme The Finance Minister could have at least reduced the amount to be desposited under the scheme substantially instead of further freezing away the limited purchasing power of the people. Alternatively, he could have made the scheme applicable only to people in certain high income brackets

Though individual industries may have cause to complain it cannot be denied that, by and large, the new budget is investment-oriented. The investment allowance scheme, which is extended to all industries except those engaged in the manufacture of low priority items, is a step in the right direction The decision to give investment allowance at a higher rate of 35% on machinery and plant will also help promotion of R & D activity, in our country.

The other good features are exemption given to the closely held industrial companies from the compulsory distribution of dividends, amalgamation of sick and a healthy industrial unit by allowing the carry forward and set-off of the accumulated loss and unabsorbed depreciation; expenditure incurred by companies on approved programme of rural development and raising the tax exemption limit of donation for charitable purposes from Rs 2 lakhs to Rs 5 lakhs

There is a tendency on the part of the people to look at the Finance Minister as some kind of Santa Claus who would fulfil all the expectations of every section of the society. We need to realise that the Finance Minister has to operate within the constraints imposed by the economic realities and has to function witih the basic economic framework designed by the Janata Party.

Since India lives in villages, the priority in our economic planning has to be given to agricultural and rural development. Larger outlay on irrigation, rural electrification, rural approach roads, fertilisers etc., will enable the economy to produce more agricultural products which will help stablise the price level and reduce the need for resorting to deficit financing

Despite heavy financial burden created by the unbriddled expenditure incurred by the Central and State Governments during last couple of years and very limited time at the disposal of the new Finance Minister to introduce any worthwhile innovations, he has successfully met the challenge and presented a budget which is almost balanced The Budgeh has neither chartered out new paths nor has it brought about a radical change in the policy making process. But it gives every reason to hope that fresh approach which has been initiated will continue in the years to come

INAUGURATION OF A NEW POLICY

C. JOHN

AS THE first budget of a new political party which had assumed power just three months back, it is bound to attract the attention of different sections of the people People had high hopes of emergence of a new policy and they would be looking for the signs of a new economic policy in the new budget It is necessary to find out whether any new economic policy is envisged by this budget This can be seen only by looking at the whole budget, by taking a connected view of the whole pattern of income raising and allocation of expenditure, especially the changes that are discernible in the priorities of the Annual Plan

If we look only at the tax proposals we may feel that we are in the beaten track. The usual attempt at balancing the budget by raising new sources of revenue by taxing commodities and increasing existing rates of excise duties is what is visible at first sight. The usual apology that the taxes do not hit the common man is also there as the levies which net in 1300 million rupees are no commodities consumed by the elite classes Yet there are some hopeful signs of a new policy in the tax proposals also The raising of the level of exemption for income tax from 8,000 Rupees to 10,000 Rupees and the additional surcharge on higher incomes give relief to the middle class people and at the same time raise resources from the upper class people The concessions to pumpsets in the matter of excise duties indicate the concern for the progress of agriculture and represents a reversal of the trend towards greater and greater taxation of the agricultural sector championed by the Planning Commission and supported by the Urban Economists over the last ten years.

The more significant changes are to be seen in some of the other proposals. The pre-Budget Economic Survey presented to the parliament by the Finance Minister on 13th June points out that investment will have to be stepped up significantly if poverty and unemployment are to be reduced; resources are to be raised so as to promote savings; reduce conspicuous consumption and contribute to a reduction in disparities of income and wealth. The changes in the investment allowance and the capital gains tax proposed in the Budget are designed to promote savings and investment so as to provide for greater employment opportunities The proposed scheme for Bank loans for self employment of the educated unemployed is a step in the right direction.

The Annual Plan expenditure for the year proposed in the budget represents an increase of over 27% over the expenditure of the last year. This has been done while keeping deficit financing at a very low level of 720 million rupees so that it may not add to the inflationary pressures

operating in the economy due to substantial deficit financing during the past few years. Over 30% of the proposed annual plan expenditure is for agriculture and other allied activities in the rural areas. This substantial tepping up of investment in the rural areas represents a return to the First Five Year Plan priority accorded to agriculture and a reversal of the trend in subsequent plans towards emphasis on industry and urban development. This change is in keeping with the ideology of the new government and is likely to bring about a better balance between supply and demand by increasing the supply of food and raw materials from the rural areas and by increasing the demand for industrial products from the villages.

This emphasis on agriculture seen in the expenditure pattern proposed in the budget when taken along with the special concessions for handlooms and the power looms represent the inauguration of a new policy by the government. A speedy and efficient implementation of such programmes will constitute th. first step towards solving the problems of poverty and unemployment in the country □

GROWTH ORIENTED BUDGET

PANKAJ KAPADIA

THE BUDGET proposals announced by the Finance Minister, though not coming up to the high expectations of the people in general, are expected to stimulate investment and accelerate industrial growth. With tax proposals netting about Rs. 142 crore, it must be said that the burden is quite modest in the present situation.

Though direct taxes have been levied on corporate sector and are expected to bring in about Rs. 92 crore, the increase in taxation has been compensated by increase in and extension of investment allowance to almost all industries except a few ones. In fact, as has been pointed out by the *Economic Times* the total gain to the corporate sector will be in the region of Rs. 220 crore as compared to Rs. 45 crores, more or less making up for the loss of the development rebate discontinued last year. Thus the net gain will be of the order of Rs 83 crores or so. The proviso that the plant and machinery installed will have to be Indian, will also help in the development of indignous technology and thus promote growth in that sector.

The third measure which wil help investment is the Finance Minister's proposal of excluding dividends up to Rs. 250/- from the deduction of tax at source. This will save small investors from the botheration of filing returns etc. to get the refund of tax.

As regards the textile industry which is the major industry in distress in the country, there is no special relief to this industry. With the Finance Minister's assurance that they are going to rationalize the tax structure within six months, it can be hoped that something would be done to help the textile industry which is one of the major industries in the country.

It would, however, have been better if the Finance Minister had not taken away the option of the corporate sector of depositing an equivalent amount with the Industrial Development Bank of India for a period of five years, in lieu of paying 5 per cent surcharge on income tax. Or the Finance Minister could have given relief to the corporate secto in some other form.

A LARGE INFLATIONARY POTENTIAL

P. R. BRAHMANANDA

THE FIRST budget of the first Janata Government will have to be appraised in the light of the policy pronouncements of the new Prime-Minister and the leaders of this Party. The Prime Minister has, more than once, categorically stated that his Government would immediately attend to (a) the containing of inflation and (b) the reversal of price-trend. The spokesmen of the Janata Government have been asking the public to look to the new Budget for the announcement of package of anti-inflationary measures.

Between March and May end this year, money supply has expanded by about Rs. 582 crores, if this rate of expansion prevails over the whole year, the annual rate would be more than 22 percent. The net bank credit to the Government sector has expanded within the short span of 2 months by as much as Rs 1200 crores, three times the expansion of such credit over the whole of 1976-77. Bank credit to the commercial sector has expanded by nearly Rs 100 crores within the 2-months period. The claim that the growth of foreign exchange assets is reponsible for the increase in money supply may not be borne out by a deeper examination inasmuch as a large portion of the increase in foreign exchange assets would have been reflected in the form of accretion of time deposit over these two months. It is also not possible to explain the monetary expansion in these two months as being due to expansion in credit to the Food Corporation. **Not a single price of any essential commodity has come down during the period of two months.** On the other hand, almost all prices have risen and are continuing to rise. The wholesale price index has risen by 3 per cen within the period of two months. At this rate, the price rise durin 1976-77 may exceed 20 per cent prices do not go up at a steady rate the rate accelerates. Looked at i terms of the above backgroun there was every reason to hope fo and expect, a strong package o anti-inflationary measures in th budget. In a period of high an rising inflation, the budgetary, fisc and monetary policies should b directed toward restricting credit o behalf of both the public and th private sectors. Immobilisation o liquid resources is one of the m important instruments tried an successful in India, of restricting th flow of money and of expenditure similarly jacking up of interest rat is another instrument. The pr portion of resources commandeere by taxes will have to go up in su

a situation.

The first Janata budget, unfortunately, appears to have adopted an entirely opposite set of perspectives. There is a provision for borrowing on the basis of treasury bills from the Reserve Bank to the extent of Rs. 72 crores, but the total borrowing commitment as reflected in the figure of net 'market' borrowing is about Rs. 1,000 crores; Rs. 110 crores more than what was provided for in the vote-on account budget two months ago. Of this, easily 50 per cent would represent lending by Reserve Bank and the Commercial banks; about 500 crores of increment in monetary resources would occur on this score. The fresh activisation of the immobilised funds, now transferred to the Provident Fund Account, is of the order of Rs. 130 crores; almost the whole of this would constitute an increase in money supply To this must to be added the borrowing in lieu of additional funds immobilised by the Reserve Bank in the first few months of this year on account of the impounding of a portion of additional D.A., etc. This may contribute to the activisation of another Rs. 50 crores, all of this adding to money supply. There is also a drawing down of US rupee balance deposits to the Government of India under the Indo-US agreement to the extent of Rs. 45 crores In addition to all this, there is the special borrowing against foreign exchange resources to the extent of Rs 800 crores The total budgetary deficit would thus be of the order of Rs 1597 crores or sbout Rs. 1,600 crores Of this amount, Rs. 800 crores or so would definitely represent an addition to the monetary resources to the community, as a direct result of Government budgetary operations. The money-supply expansion component would be more than Rs. 500 crores. Rs 800 crores of borrowing against foreign exchange reserves also can have dangerous implications in terms of the expansion of monetary resources in the country. This is as follows. Obviously, this 800 crores are not intended to be lent to the Food Corporation or other agencies for the import of food or oil or other commodities. Some of the commodities are imported on private account. We cannot assume that the 800 crores would be wholly taken in the form of foreign exchange by the Government of India in so far as the Plan outlay for 1977-78 is concerned. If we include net external assistance and the assumed borrowing of Rs. 800 corres of foreign exchange, the exchange component of outlays would be incredibly large. Naturally, there is no reason to believe that this exchange is required for purposes of filling the foreign exchange gap of Plan expenditure nor is there reason to hold that the latter has been devised with a view to absorbing this amount of foreign exchange. If the rupee resources are lent to financial corporations and other, on the plea of helping them to obtain foreign exchange, it is quite possible that such loans may be taken primarily in the form of rupee resources, thus activising the exchange which, at present, is not circulating as money. There is a great fear that the type of borrowing now being undertaken by the Government might activise the foreign exchange like money itself and this may lead to the same phenomenon as happens due to the circulation of euro-dollars in Europe and other countries Central Banks in these countries take special measures not to activate foreign exchange. There is room for the fear that the bulk of the borrowing against foreign exchange may eventually be reflected in domestic monetary expansion since no counter-veiling reasons for the use abroad of exchange reserves by the Government have been given

We are, therefore, constrained to conclude that the first Janata budget has a large inflationary potential built into it There is another aspect of the budget which is very disturbing from the angle of any anti inflationary policy The Finance Minister has announced a number of concessions and reliefs In many cases, these reliefs are not coupled with the requirement that the resources so released would be saved and reinvested in specific categories of saving, accruing to the public sector In a poor country where more than 50 per cent are living below the poverty line, the case for raising the exemption limit cannot be supported by economists Not merely has the exemption limit been raised to about Rs. 10,000 of annual income, but the Finance Minister has not made this exemption conditional upon released resources being reinvested in certain forms of savings. If we assume that about Rs. 660 per capita per annum constitutes the poverty line, the average per capita national income being around Rs. 1,120 per annum, the exemption limit per capita will now be about 7 times the poverty-line: The Finance Minister has announced a number of tax concessions to companies and firms for undertaking rural development and for utilisin[g] indigeneous technology developed i[n] public sector agencies as well as i[n] Universities. He has given con[si]derable reliefs in capital gains tax an[d] has also reduced the tax base fo[r] capital gains. Capital gains accruin[g] over shorter-periods are also ad[]missible for reliefs. All these mea[]sures involve the foregoing of re[]venues and whatever may be thei[r] desirability or the opposite otherwis[e] they are definitely questionable in the present context since they enlarg[e] the size of the deficit.

Prior to the budget, the authori[]ties—fiscal and monetary—had an[]nounced a calculated retreat fron[m] dear money policy. From the mone[]tary-fiscal experience of the last [] months it appears that not merely is the economy being flushed with liquidity but lending terms too are tending to be liberalised (there are some concessions also to financia[l] corporations in the new budget) Money is becoming more abundan[t] and less dear. In this context the Janata Party has none to blam[e] but itself if a bold opportunity fo[r] a package of anti-inflationary mea[]sures has been lost by the Financ[e] Minister What should the Janta d[o] if the prices continue to soar and th[e] economic situation turns out to b[e] more difficult

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The Commentators :

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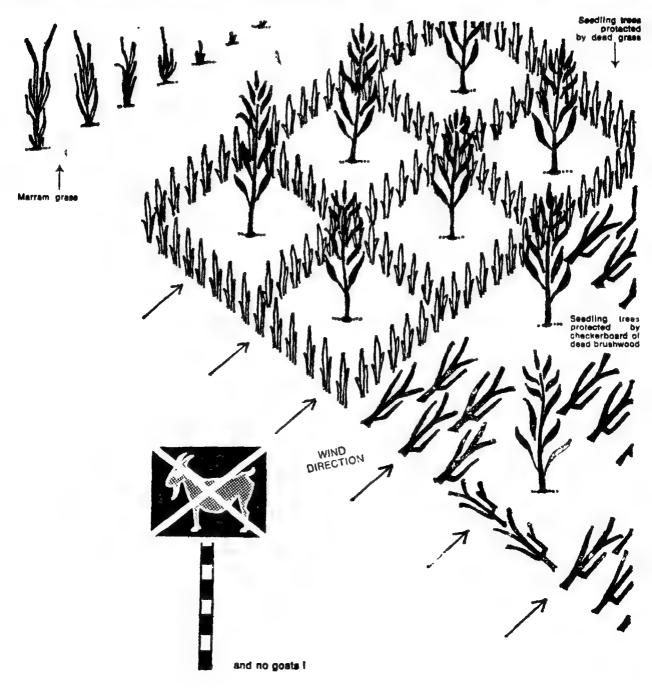
STOPPING THE DESERT

Once the front-line is contained, the natural vegetation will be replaced by crop plants.

Some of the current ideas and means of fighting desertification are shown in this page. The problem of halting desert spread is particularly difficult, partly because, almost by definition, most desert areas are in poor and under-developed regions of the world. But natur and artificial means of haltii encroaching sand are bei increasingly employed; son

are almost traditional, others are the product of modern technology. Once the front line has been held, trees-most of them already natural inhabitants of desert areas-can be established, to be followed later by crop plants. But the front line is thousands of miles long-globally speaking-and gains in one region will perhaps always be offset by advances of the desert elsewhere.

Three of the means of halting the progress of sand dunes are illustrated here. Where there is at least some rainfall, or water is otherwise available, certain grasses can help stabilize the dunes. They include marram or beach grass (Ammophila arenaria), and esparto or alfa grass (Stipa tenacissima); these spread by long trailing roots from which new tufts spring up. Where not even grass will grow, hedges of dead bamboo or grass stems or a checkerboard pattern of dead branches may hold up the sand. Behind the hedges and in the spaces, trees or desert shrubs may be planted. Sand may also be stabilized by spraying with bitumen-for example, in oil-rich desert countries-or with a chemical that forms a thin, protective layer; trees can be planted in gaps, while the chemical prevents loss of moisture by evaporation.

Water

Because the principal characteristic of all desert and semi-desert regions is an extremely low and irregular rainfall, water must somehow be made available from below ground if permanent vegetation is to be established. In some areas this is quite near the surface and can be got by ordinary wells. Elsewhere, it may be possible to trap and even heavy thunderstorms. But the most reliable source is from deep down, where water that fall as rain-perhaps several hundred years ago-is trapped in permeable strata, often held between two impermeable layers, can be tapped by artesian wells. Where the pressure of the subterranean water forces it to the surface and makes irrigation-and human habitation-possible. Water near to the surface, and not under pressure, can be got by sinking tubewells and pumping the water up when required. The first system is typical of the situtation in much of the Sahara; the second has been much used in the desert areas typical of the Lower Indus basin in India and Pakistan.

The traditional tree of the desert regions, especially in North

Date palm

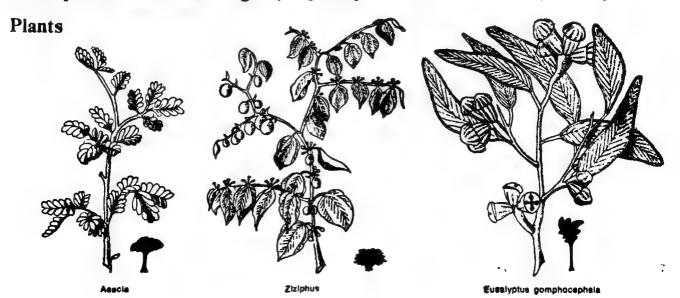
Africa and Arabia, is the da palm which provides foo timber and the materials f shelter. Now increasing use other trees, such as vario species of eucalyptus and juju (Ziziphus), is being made establish vegetation and occu the lands won back from t desert. The many species acacia, too, can survive und all but the most extreme dese conditions, and have trad tionally provided fodder f camels and goats. But t exclusion of the latter may essential until they can properly controlled and veget tion is firmly established.

Courtesy Development For

Plants

Acacia

Ziziphus

Eucalyptus gomphocephala

RAJASTHAN CANAL

The Man-made River that will Make the Desert Bloom

A YOJANA STAFF

REPORT : **N. N. CHATTERJEE**

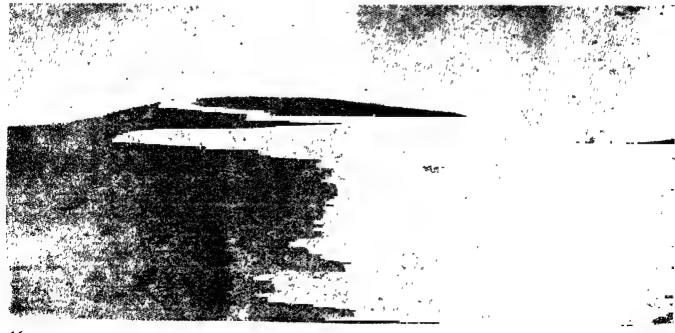
PHOTOGRAPHS : **P. K. KAPOOR**

ARCHAEOLOGICAL evidence suggests that a highly sophisticated civilization existed in Pilibangan in Ganganagar district of Rajasthan over 3000 years ago when the river Saraswati flowed here before joining the sea near the Rann of Kutch. The available evidence also shows that there was a a widespread drainage network in the Luni, Ghaggar and Saraswati basins and that the entire region was fertile and wooded. Since then, Saraswati has gone completely underground, the Ghaggar valley has changed from its original greenery to an arid desert. The river Ghaggar cannot be seen except when it comes alive after monsoons to lose itself again in the sands of northern Rajasthan

In contrast to the lush greenery of Punjab this part of Rajasthan has all the appearance of a cosmic slag heap Little can survive in this seared land of unending sand. Often the traveller's only companions are the swirling winds and dust storms reminding the helpless traveller that he is an unwelcome guest. Heat generated by the searing Sun blows on his face in this inhospitable desert and the first thought that comes to him is to beat a fast retreat.

For miles and miles there is no habitation. *Phog* shrubs on which not even goats can feed, stray camel drawn carts, heaps of shifting sand dunes and thorny *Khejhri* trees are the only sights to be seen. Except for occasional buses or lorries there is very little traffic on the CPWD highway (NH-15) which connects Jaisalmer with Bikaner. Electric transmission lines running along the highway remind one constantly of the fact that this is a part of civilization and not a part of the thirsty Thar.

Scientists say that this is a man-made desert, the bitter fruit of generations of thoughtless use of land, uncontrolled cattle-grazing, which destroyed the green cover. For untold centuries this process of desication has gone on with man retreating farther and farther away from this hostile environment. Those who continue to inhabit these expansive tracts have adjusted, like the goats and sheep to its aridity and waterlessness and the resultant poverty—a classic example of the surrender of man to nature's fury However, today one sees the assertion of human will to undo the mis-

For miles and miles there is no habitation. Only swirling winds dance like ghosts on the seared land of sand dunes.

take of yesteryears. Both the people and the Administration are steadily transforming these deserts into smiling farm lands. The Ganganagar district symbolises the triumph of man over nature.

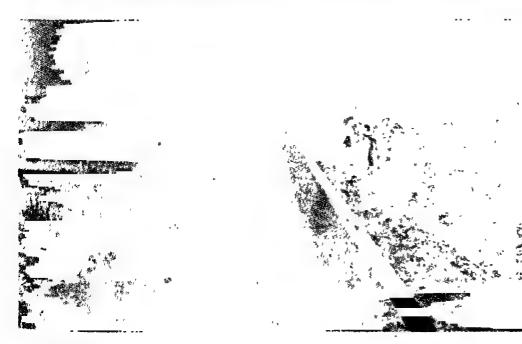
The Central Water and Power Commission made the first estimate for the proposed Rajasthan Canal Project in 1951 by conducting a survey. It recommended that the Rajasthan Canal should start from the Harika Barrage in Punjab and be taken upto Jaisalmer district so as to irrigate about five million acres in the north-western region of Rajasthan which forms a part of the Thar desert.

Rajasthan covers an area of 3,42,214 sq km, of which about 37 per cent is desert area. Of the gross irrigated area of 25.45 lakh hectares of land; 55 per cent is irrigated by dug wells, 35 per cent by canals and 10 per cent by tanks The net area sown is about 134 lakh hectares. As such agricultural production is mainly dependant on rain fall which is less than 130 mm in a year.

The Rajasthan Canal Project consists of a 214 Km long Rajasthan feeder canal (the first 178 km of this canal pass through Punjab and Haryana and the remaining 37 km in Rajasthan) and the 467 km long Rajasthan main canal lying entirely in Rajasthan. The first stage of the project consisted of construction of the feeder canal and 195 km of of the main canal lined with tiles and bricks through the desert. The formal start of this gigantic canal project was made on March 31, 1958 and Dr. S. Radhakrishnan, the then Vice-President of India, inaugurated the first flow of water from this life channel on October 11, 1961, in the Naurangdesar and Rawatsar distributaries. The completion of Stage I would almost be over by the end of Fifth Plan at an estimated cost of Rs 176 crores. The Second Stage covers the construction of the remaining 272 km of the main canal, work of which has also been taken in hand.

The Canal aims to irrigate a C.C.A. of 5.4 lakh hectares in Stage I and 7.6 lahh hectares in Stage II of the Project. The intensity of irrigation has been kept at 110 per cent in Stage I and 96 per cent with lined water courses in Stage II of the Project. The total length of main canal will be 649 km which includes 215 km long Rajasthan Feeder Canal. Its branches, distributaries and minors will measure

People are forced to move with the constant shifting of sand dunes.

At 22A Chawk in Anupgarh distributory, government built quarters for the Pong Dam ousted families are lying vacant. Uptil now only 5 per cent people have come there to live.

The main canal which runs through the desert, is lined with tiles and bricks to prevent seepage of water.

6,396 km in all! The length of the field channels is expected to be about 60,000 km;

Meanwhile this man-made river has already proved a boon for the people of this north-west area of Rajasthan. While in 1971-72 only about 1445 hectares were under irrigation in this area, in 1974-75 it rose to a record figure of 2,50,000 hectares.

Early completion of this vital project is necessary to remove poverty and the untold sufferings of the people who are forced to move with the constant shifting of sand dunes. But this depends mainly on the availability of funds and construction materials. The position of estimated cost and expenditure so far is given in the next column.

As such Rs 236 crore is still required to realize the irrigation benefit.

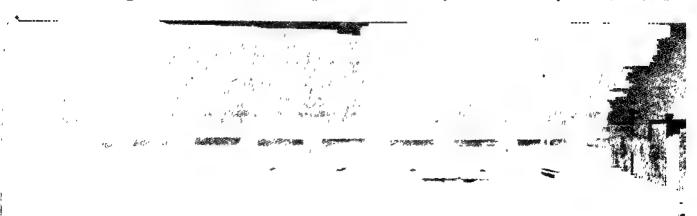
According to Shri D.S. Notra, the Chief Engineer, who is controlling

		(Rs. in cro	
	Stage I	Stage II	Tot
Estimated cost	176	220	39
Expenditure incurred till the end of 1976	150	10	16
Balance	26	210	22

the whole project upto Anupg Shakha, a good deal of hard w has gone into building the can Yet much more remains to be dc Rate of development upto now been rather slow. Main constra so far has been lack of adequ funds. Other causes were lack proper communication facilities this in-hospitable wasteland, ina quate transport, scarcity of water construction and limited m power. Majority of the labour g away as soon as harvesting start

A group of engineers who i this correspondent at the site rela the tragic story of a Junior Engin who was working on the Stage project (near Bazzu) at 320 km the Rajasthan Canal. The engin it seems, lost his way in this cr inhospitable land. He looked ri and left for water. In the end became so desperate that to quer his thirst he drank his own ur and ultimately died.

For construction purposes wa is brought via pilot channel fr the main Rajasthan Canal T water is also needed to maint the colony of workers In otl

Lift irrigation has been started to irrigate the desert region which will not directly benefit from the Rajasthan Canal network

words, life has to be made possible in the lifeless desert before construction work can be taken in hand.

Shri Notra said that for transporting construction material formerly they were depending on mules and machinery but now camel cart has been introduced. Three thousand camel carts have accelerated the work of the project

With, the completion of Pong Dam, supply of irrigation water to 12.62 lakh hectares has become certain. On full development, the project is expected to yield agricultural produce worth more than Rs 300 crores per annum The enthusiastic way in which both the engineers and the workers are working on this project, one can safely say it is possible to complete this mighty canal project in about five years, provided adequate funds are available.

For lining bricks are needed, which are made departmentally. A girl carrying water from the pilot canal.

Lift Irrigation

A new scheme has been started to meet the irrigation needs of the desert region which will not directly benefit from the Rajsthan Canal and its net work Some time back, the National Commission on Agriculture recommended a series of lift irrigation schemes for draught-prone areas of Churu, Bikaner, Jodhpur, Jaisalmer, Barmer and Nagaur. The Water and Power Development Consultancy Service have also prepared an Approach Report for Rajasthan Canal Stage II.

According to this Approach report an area of 2.5 lakh hectares, which are less suitable for irrigation is proposed to be omitted from the present six lakh hectares of Stage II of the Rajaslhan Canal as such only 3 5 lakh hectares will be retained under flow and taking up a new area of 3.89 hectares involving lift up to 90 metres. The intensity of irrigation has been estimated at 110 per cent.

In the Stage II of the project, it is being considered that at least 5 lakh hectares area under flow, out of the 6 lakh hectares proposed in the project report of 1975, may be retained alongwith 2 6 lakh hectares new area as suggested by the WPDCS report with a lift upto 60 metres by reducing the intensity of irrigation to 96 per cent from 110 per cent

Husan Sagar pumping station lifting water up to about 3 metres.

Any one visiting this area after a lapse of 15 years will see how this wasteland in the western border of India has changed beyond recognition. At the same time, all the expectations of rapid development of the area have not been fulfilled. Despite the fact that Government took lot of pains to allot land to the people suffering for generations, the results have not been commensurate For settlement in the command area of Rajasthan Canal first priority was given to people who were ousted from their homes due to the construction of Pong Dam. Besides compensation in cash they were also given land in this area. However about 9,000 such families have given out their land on rent and at present only two thousand families are still in occupation. At 22 A Chawk in Anupgarh distributory, government built quarters

Shri Tej Kumar, the Area Development Commissioner, Bikaner area.

for the Pong Dam ousted families, only 5 per cent people came there to live The result is land is there, water is available, but people have no interest to start a new life there

What particular constraint made this project hang on for so long? Why are the people reluctant to settle down here? According to Shri Tej Kumar, the Area Development Commissioner the original constraint was the non-availability of coal and cement, now it is not so much. Of course labour was a big constraint too. During harvest time most of the labourors went away. Much more work could have been done if the labour were available throughout the year.

As regards land allottment policy, some rethinking needs to be done. The allottment rules say:

First land to be the revenue village, secondly Panchayat, thirdly colonization tehsil and forthly to the people living in the district When suitable persons in the district are not available then people living in neighbouring district should get priority The problem of settlement at Bikaner area is serious. In March 1976 more than 7,250 were allotted land to settle down in this area and till February, 1977, not a single person has come there. The offer was given to the landless and Harijans Farming has a peculiar trend and farmers' values are as old as rocks. A landless boy working in a Jaipur hotel most likely will have neither the capacity nor desire to take to farming Thus the egg has to be broken very carefully. A rethinking is certainly necessary in regard to colonisation The suggestion is to auction land, to those interested in agriculture. This will result in better utilization of land

A brighter future certainly awaits this area And as soon as the problem of settlement is solved the magic touch of Indian farmers will change this area into a given granary of prosperity □

A Dream Comin[g] True

O. P. Sharma

It is really a dream coming t[rue] for people of parched dry la[nd] called Kandi areas in local p[ar]lance by construction of Rs. 40 crore Ravi Canal Project, a pre[sti]geous and biggest irrigation proj[ect] in Kathua district of Jammu a[nd] Kashmir State.

The thirsty barren fields yiel[d] little, if anything. Farmers look in vain to the rain Gods. A n[ew] hope is emerging with the R[avi] Canal project. At present t[he] work on the project is going on full swing. Rupees 3.64 cro[res] are expected to be spent on construction during the curre[nt] financial year as against only R[s.] 1.23 crores spent since its incepti[on] in 1973-74. The project is e[x]pected to be completed by the e[nd] of 1982-83 with an estimated co[st] of over Rs. 40.00 crore. Of tl[his] Rs. 17.40 crores are being spe[nt] upto the end of the Fifth Five Y[ear] Plan period while over Rs. 22.[..] crore will be spent during the ne[xt] Five Year Plan. On its compl[e]tion, the project will irriga[te] an area of over 106560 hectar[es] of land

Three thousand camel carts have accelerated the work of the project

WATER—The Source of Life

LALIT THAPALYAL

Water is the source of life, and yet about 80 per cent of the people inhabiting the rural regions of the developing world have no access to safe water. An even higher percentage lack facilities for sanitary disposal of human wastes, and remain constantly exposed to intestinal infections carried by contaminated drinking water.

The importance of safe water as a factor in preventing disease and promoting health has been increasingly recognised over the past decades, but action to rectify the situation needs to be accelerated.

LIFE began in water. Billions of years later, the organism reached out towards land and arnt to survive in air out of water. he stream of life flowing through ie labyrinths of time brought counts creatures into being culminating i the advent of man, essentially a .nd-lubber. But the bond with ater, the mother element, remained lot only does the human individual art life's journey in the embryonic ick of fluid but the body cannot irvive without water more than a w days. Alluding to the bloodlled mammalian body consisting ine tenths of water, a biologist as whimsically pictured human beigs as 'walking bags of sea water'. hese "bags" must be replenished ith intakes of water throughout ur lives to maintain the body's uid balance Two of man's most mportant lifesustaining activities—griculture and industry—are dependent on water.

Water is thus vital to human xistence, but so is it to other forms f life Many of these, seeking ioisture and food, find devious ays of entering the human body nd bring disease and death. The ife cycles of the organisms responsible for water-borne diseases ividly demonstrate the inter-depenence of life, from the microbe to ian. From water, which sustains fe, also comes the threat of death nd disease. In order to survive nd maintain good health, man must emain on guard against polluting ne of the most important elements of his environment—water. This applies also, though to a lesser extent, to the two other elements of the biosphere, land and air.

The study of man's relationship with the various elements in his surroundings, and the use of this knowledge to prevent disease and promote health, are the major concerns of environmental health It seeks to ensure that human beings live in harmony with their environment, drawing sustenance from it and using it for social and economic needs without endangering their health or disturbing the ecosystems. In many cases man himself is the agent of the environmental pollution that threatens his well-being. With the advance of civilization have come rising populations and overcrowded cities and shanty-towns choking in poor environmental sanitation Industrial growth has contributed to air, water and soil pollution

The various aspects of the problem are reflected in the environmental health programme of the World Health Organisation (WHO). Heading the list of priorities in this programme is provision of basic sanitary measures, of which the main elements are safe water supply and disposal of human excreta and other wastes. In 1975, more than 57% of a total of $ 20.5 million allocated to WHO's environmental health programme was spent on activities aimed at providing basic sanitary measures and services. The reason is obvious: some of the leading causes of death and morbidity in the developing world are water-borne diseases such as cholera, typhoid fever, diarrhoea, dysenteries and intestinal worm infection. The vectors of dengue haemorrhagic fever and filariasis breed in insanitary, stagnant water in areas where the drainage is inadequate or non-existent. This applies also to some varieties of the anopheles mosquito, vector of malaria. Schistosomiasis, an infection borne by a water snail, perpetuates itself in communities lacking sanitary facilities as the eggs of the disease organism discharged in the urine or faeces of the sufferers are washed into rivers, canals or lakes to start a new chain of infection. It has been estimated that the burden of sickness in the world could be immediately cut down by 80% if it were possible to supply safe water to people everywhere. But to make this a practical proposition requires not only large resources but a determined effort on the part of the governments directly involved to free the poorest sections of their people from the vicious grip of disease and poverty The grim fact is that more than 1,200 million people of the developing countries have no safe water supply and more than 1,400 million no sanitary waste disposal facilities.

These are inhabitants of areas with the highest rates for infant and child mortality and deaths and sickness caused by communicable diseases. While it has not been possible—mainly owing to lack of data and a variety of complex factors that contribute to disease prevalence—to establish an exact numerical correlation between poor sanitation and disease, it is not difficult to see that no community can free itself from the grip of enteric diseases if its drinking water, polluted by human wastes, is a constant pathway for disease organisms travelling along the route: man-faeces-water and/or food-man.

By contrast, in communities where water supply and excreta disposal have improved, many enteric diseases have ceased to be public health problems. The outbreak of cholera is a case in point. Even a few cases in an Asian or African community lacking a protected water supply system often explode into an epidemic; in countries of Europe where water-works and waste disposal systems have been perfected,

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Shri Thapalyal is Public Information Officer at WHO headquarters in Geneva.

imported cases of cholera have been reported every year since 1970 but without similar consequences.

The principle was vividly demonstrated during a cholera outbreak in the Mulanje district of Malawi in 1973-74. A study of the distribution of the disease showed a striking difference between areas receiving piped water and those served by unprotected surface water. Moreover, the victims in the area receiving piped water were shown to have either caught the infection in villages other than their own or to have been using the contaminated surface owing to the distant location of the standpipes.

The lack of basic environmental health facilities for over one-third of mankind and the resulting cost in terms of sickness, deaths and thwarted economic growth cannot be ignored in any effort to promote development and raise the quality of life. The provision of safe water and sanitary waste disposal facilities to the urban and rural populations of the developing countries is therefore being pursued by WHO as a major objective during the present decade, designated by the United Nations as the Second Development Decade (1971-80)

Development Decade

The goals set at the start of the decade were modest enough· 60% of the urban population to have house water connections and 40% access to standpipes, and 25% of the rural population to have safe water by the end of 1980 Even while the targets were adopted it was felt that they might be difficult to achieve owing to population growth and other factors, such as shortage of funds and trained manpower However, a mid-decade review (1971-75) has shown that at the rate of the progress achieved so far, those goals are likely to be realized in most of the developing world. All targets are being revised upwards with the exception of that for urban population to be served by standpipes. Targets for the provision of excreta disposal facilities have been set for the first time ever. The total global investment in the proposed new targets for community water supplies in 1976-80 is estimated to be in the region of $ 21,000 million—an approximate annual investment per head of $ 1.81, taking the estimated 1980 population of the developing countries as the base. The estimated global investment in excreta disposal projects is $ 14,500 million, or $ 1.25 per head. The community water supply programme will directly benefit 479 million people and the waste disposal programme 432 million.

Where does all this money come from? Not from WHO, with an annual regular budget of about $ 140 million, nor from any other single member of the United Nations system. The major contribution must come from the countries benefiting directly Additional resources are expected to be generated, thanks to the close collaboration between WHO, UN Children's Fund (UNICEF), UN Development Programme (UNDP) and the International Bank for Reconstruction and Development (IBRD), the support of bilateral agencies, and long-term loans by regional banks once they are convinced that to invest in waterworks is justified on socio-economic grounds

The funds available are utilised in various ways, depending on the state of development of the country, and its immediate and long-term needs In a typical case, WHO cooperation may begin with helping the national health authorities organise a nationwide technical and institutional study of the water supply and waste disposal facilities The investigation will reveal areas where demands are not being met, what are the main hurdles, and what the government and international agencies can do about it This will enable the government to assess the country's water supply and sanitation needs within the context of the total health programme and of other development activities It will be possible to choose realistically the type and size of the population to be covered, decide the type of services to aim at and determine the level of the governmental and international action In the case of projects requiring a large financial outlay, WHO helps further by identifying viable investment projects and informing potential donors and lending agencies

As recent examples of investments following such studies may be mentioned: India IBRD appraised a $ 78 million water and sewerage project that will benefit 6.2 million prople; Oman A UNDP-assisted water supply project costing $ 435,000 was formulated, Republic of Korea A UNDP-assisted project for sewerage was drawn up for the city of Seoul In Latin American countries, the total investment in programme of water supply and sewerage over the period 1961-75 reached $ 5,000 million. A large numl of projects have been carried o by WHO in close collaboration wi the Inter-American Developme Bank, IBRD and the Canadi International Development Agen

The focus of the programme h been shifting increasingly to t rural poor, for it is in the ru areas of the developing countr that the magnitude—and the glari injustice—of the problem is mo strikingly evident. About 80 p cent of these people have no acce to safe water and even more a without sanitary waste disposal fa lities. And yet, these are the peop who as farmers, cattle raisers, villa craftsmen, forest workers and fishe men, contribute the major share the gross national product in t primarily agricultural economies the Third World. In recent year more and more governments ha accorded a high priority in tl national health plans to the enviro mental health needs of the rur communities.

A water supply programme e pecially aimed at rural areas of tl developing countries is being carri out with substantial material suppo from UNICEF The constructi of tubewells with handpumps is major goal of this programm and good progress has been ma in some countries Bangladesh, f example, constructed 100,000 ne tubewells and repaired 40,000 with the past four years Pakistan hop to install 35,000 tubewells/handpum by the end of 1976 under a schen launched four years ago The R public of Korea over a period three years (1972-75) has succeed in ensuring easy access to safe wat to 50% of its rural populatio Nearly 4,000 simple rural wat supply systems have been install and thousands of dug wells con tructed or repaired in a programn which is also supported by tl World Food Programma Notat progress has been made in tl Region of the Americas particular in Argentina, Chile, Mexico ar Uruguay in terms of the number rural people having access to sa water.

One of WHO's tasks is to colle develop and dessemınate informatio on water supply and waste dispos technology that could be adapt for use in developing countries 1975, for instance, a considerat amount of information was collect on certain types of handpumps ar other methods of extracting wat which will be used in prepari guide-lines on the subject.

In many rural areas the village pond is the main source of water—and infection. A method has been developed to use the water without risk to health by providing an infiltration gallery in the bed of the pond that filters the raw water and delivers it into a well at the edge of the pond. A planning guide for rural water supply that could be adapted to varying local conditions is being prepared by WHO for use in rural development projects

These are examples merely of what can and is being done to improve water supply and waste disposal in rural areas of the developing countries. What has been achieved so far barely touches the fringe of the problem. But valuable lessons have been learnt for he future The best results have been achieved where the governments showed a firm determination to carry the programme through and were able to ensure community participation

This experience has confirmed a number of principles that WHO regards as basic to the development of environmental health programmes.

According to this approach environmental health projects and activities should be regarded as an integral part of the national socio-economic plans, and should be allocated national resources in consonance with the country's other priorities. A major goal should be provision of basic sanitary facilities to the largest possible proportion of the population as a means of improving health, with a marked emphasis on underserved communities. Particular attention should be given to community participation, utilisation of local resources and development of self-reliance among the people served If safe water is essential to the well-being of a community, the community participation in building and maintaining a water supply system is no less vital. Once involved, the people can contribute in many ways towards the cost of construction and maintenance of the system, and keeping it free from pollution. Many development projects may leave the poorest sections of the community untouched, but the benefits of a conveniently located safe water supply system directly reach the lowliest home in the village. By consrast, the lack of adequate and safe water puts its stamp of suffering and misery on the entire community, and lowers the quality of life as a whole. The recognition of these facts has led to many welcome developments in the recent past. The heightened awareness of life's dependence on water, and of the plight of the millions with no access to an adequate and safe water supply have roused the social conscience, and spurred remedial action at the community, national and international levels. □

Making Deserts Bloom

NEERAJA

THE DESERT, like the world oceans, has begun to give up its mysteries as man extends his activities to these hot, sandy, and hitherto supposed to be barren stretches.

In USSR alone, whose deserts cover more than 200 million hectares, comprehensive studies are under way at 42 stations, using up-to-the-minute techniques including aerial and space photography.

The deserts in the USSR are rich in oil, natural gas, minerals, and the Karakul sheep famed for its wool, inimitable in colour and quality In fact, the livestock products of the deserts are of a better quality and cheaper than in other natural zones. Unfortunately, the fodder resources are not stable, fluctuating from year to year

A desert does not tolerate a wrong decision. For example, a canal can turn a sandy patch into a bloosoming fertile land in 10 to 15 years. But if a drainage network is not constructed in good time, the same soil will turn into salt bottoms or swamps.

Soviet scientists are studying the problem of raising the productivity of desert pastures. Desert animals are rather choosy. For instance, only desert vegetation with its peculiar properties can obtain Karakul. Scientists conducted experiments in the most arid sections of the desert where annual precipitation is 120 to 140 mm The object was to raise productivity without violating the natural equilibrium and without using additional sources of moisture

A certain amount of moisture does exist in the sands. Plants like saxaul and some other shrubs can survive in the most arid conditions. But the seeds must be fixed in the soil. This, it has been found, can be done by elementary agro-technical methods—harrowing, ploughing and sowing at the right time

Upto 3000 sprouts per hectare were obtained during experiments. Every hectare yields over eight metric centners of fodder-nearly four times that obtained in ordinary, unattended natural pastures. Besides, half a ton of wood is obtained per hectare from the shrubs White saxaul, chogon, cone-bearing jointfir and some grasses are found most suitable for sowing. They also ensure a balanced ration for Karakul sheep.

Man-Desert Relationship

To develop the deserts, man too must live and work there. But the man-desert relationship is not easy to form. The sun heats not only the sand, but machines and walls of buildings. Under these conditions, men fatigue easily. The water and salt metabolism is also upset.

Scientists are trying to find ways to raise the organism's resistance to high temperatures and other desert factors. A special work schedule for summer months has already been evolved for workers in the Karakum desert where reclamation work is going on. A longish rest period during the day was seen to increase labour productivity by 12 to 17 per cent. In the fields, machine-operators are given two intervals and an airconditioned rest period.

A beverage prepared from green and camel's thorn has proved helpful in summer months. It has greatly cut down the incidence of gastro-intestinal diseases. A new recipe for a tonic is now being tested.

Air-conditioned cabins in tractors have been tried successfully and new methods of remote control of machines are being developed. Scientists are already on the trail. They will master soon the means and methods that would enable man to actively work in the conditions of a hot desert.

SOME INCOME POLICY ISSUES

S. K. WARRIAR

AN INTEGRATED policy linking wages, incomes and prices is attracting the attention of the policy makers currently. It is a matter of great satisfaction that the Government is moving away from deficit financing and considering effective measures to control inflationary tendencies. In our country, pressures to consume more than what is produced or demands for consumption to precede production were mounting in the past. That this is an impossibility has now been realised is a welcome break from unrealistic policies of the past. But still the thinking is only on linking incomes and prices. The fact that both these are indissolubly connected with productivity is not adequately appreciated. It is necessary to integrate productivity also into any such policy. In fact what we should consider is a productivity, income and price policy. This is the time to have an appraisal of the legacies of the past, learn from past mistakes, evolve right policies and implement them effectively to manage our resources for the good of the country.

Real Income Vs Money Income

Independence from alien rule ushered in a new era of high hopes and ambitious aspirations for progress and prosperity of the people in our country. However the economic development achieved through four (and a half?) Five Year Plans has not measured up anywhere near these expectations. The economic development of a country has to reflect in the standard of living of the people. And improved standard of living depends on the availability of goods and services for the consumption of people. Income is derived from the work we do and the goods and services we produce. The fiction of money that we created out of the token of exchange of commodities appears to have deluded us to believe that money is income. We have to get out of the concept of income in money terms and think of income in terms of physical availability of goods and services, i e , real income. The standard of living is a function of real income not money income. What we require to satisfy our needs are material goods like food, cloth, medicines, fertilizer, pesticides, steel, cement, electricity, water, fuel, etc , and services like those of a doctor, teacher, postman, etc , and not paper currency. These things have to be produced or generated before we can distribute them. Of course, a more equitable system of distribution is required to motivate the working people to produce more.

Need for Higher Productivity

Productivity is the ratio between output in the form of goods and services produced and the input of resources in the form of manpower, materials, machinery, etc. Since materials, machinery, etc , are produced by men, manpower is the only basic resource, we utilise in this conversion process. With this available basic resource, we have to produce more goods and services if we want to improve our standard of living. Though we tend to believe that we have plenty of human resources, it is not true. We have plenty of men but not manpower. If these men have to be economically useful, they have to be trained and developed in technological and managerial skills and then put to productive employment. It is disappointing that in this country of teeming millions, we are encountering acute shortage in these skills. Is it not evident from the facts that we are importing sophisticated machinery, equipment and know how from abroad, that we are grossly under-utilising and mismanaging the production capacity we have created and that our productivity levels are pitiably low as compared to advanced countries?

Since the value of goods and services produced by an Indian is only a fraction of what is produced by his counterpart in advanced countries, our income (wages and salaries) and other benefits which have to be per force less than the per capita product can be only a fraction of what foreigners [illegible] In turn, this low wage/income delu[des] us to believe that Indian manpo[wer] is cheap while, in fact, it is [the] costliest. Only those who hav[e] vested interest in keeping our [in]come low will propagate the m[yth] that Indian manpower is che[ap]. We use five/six men on jobs wh[ere] other countries use only one ha[nd]. This basic fact should be borne [in] mind even when we adopt inter[me]diate, labour-intensive technolog[y] as a transitional strategy, in [the] context of widespread unempl[oy]ment.

Higher income can be attai[ned] only when we have more goo[ds] and services for consumption, high[er] consumption will be possible o[nly] when we produce more goods a[nd] services.

Poverty and Unemployment

Greater production of goods a[nd] services by each man and wom[an] in the shortest possible time us[ing] available resources (which is wh[at] higher productivity means) is t[he] need of the hour. The unutilis[ed] potentialities of the employed ha[ve] to be tapped and the idle capaci[ty] of the unemployed have to be pres[sed] into productive work to build o[ur] economic future. For increasi[ng] productivity, only two courses [of] action are available (i) increasi[ng] the number of men working (em[]ploying the unemployed) and ([ii]) increasing the per capita output [of] the working men (i.e higher pr[o]ductivity). To provide producti[ve] employment to the unemployed mo[re] investment is needed. This inves[t]ment has to come out of the surpl[us] of production over consumptio[n] which automatically means that w[e] should produce more than wh[at] we consume. That is, the value [of] the contribution of our work shou[ld] be more than our income. This su[r]plus would only enable the nation [to] employ the unemployed. The fee[l]ing that each one of us has to d[o] less work so that there will be som[e] work left to employ the unemploye[d] is mythical and self-defeating. I[n]crease in the productivity of eac[h] of us will only enhance empl[o]yment, growth and development

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Savings, Investment and Growth

Capital is nothing but the saving of surplus of production over consumption. It is wrong to assume that capital is required to increase production and productivity. on the contrary increased productivity only creates capital In an under-developed country since usually the surplus of production over consumption will be low, savings will be low and consequently investment rate will be low. To the extent wage incomes are consumption-oriented rather than savings-oriented, rise in wage levels signified a corresponding diversion of a portion of the total national product from savings and investment to consumption (para 15 28 of the Report of the National Comission on Labour) Under such conditions, to achieve a fast rate of growth, investment rate has to be boosted up by concerned efforts from low levels to higher levels

Production and Consumption

Such an increase in the investment rate involves not only production of more goods and services or an increase in per capita income, it also means that the increases in consumption should be less than proportional to the increase in per capita income It is because of this that sometimes consumption is intentionally restricted in some countries during the process of growth and until ample capacity for production is established. consumer demands are not allowed to this problem of keeping production above consumption They encourage consumers to want more and more goods and services and to work hard to satisfy these needs. The hard work put in by these people and the resultant higher production of goods and services always precede the satisfaction of needs, i e higher consumption. Under both these systems the rise in wages, salaries and individual gains will be less than the increase in productivity or the former will lag behind the latter Unless it is so, incomes generated will be completely used up for consumption and no surplus will be left for reinvestment which alone can contribute to further growth

Foreign financial aid will not solve the problem for us since, at some point of time, we have to generate the wealth to pay back this money. Considerable amounts of money have been spent on non-productive projects, public administration, community services and so on which generate no corresponding wealth, at least in the immediate future. The investment in many projects with long gestation periods have introduced a wide gap between the expenditure of money and the production of goods and services with the result that corresponding to the money available with public, more goods and services are not available, thus contributing to inflation. The capital invested earlier in many public sector undertakings have not produced any commensurate returns. Deficit financing and inflationary policies have so boosted up the cost of production that the prices have skyrocketed

Stagflation

Inflation is nothing but the process of too much money chasing too few goods When we tried to control the money circulation through measures like compulsory deposit of additional emoluments, ceiling of dividends, etc, it was found that these measures were not very effective since they encompassed only a small sector of the economy In the peculiar economic situation in which we are at the moment, the official data regarding income (collected, compiled and published by the Government) do not reflect the complete picture The parallel economy of unaccounted money (hoarded and bidden goods as well as services that are utilised for the operation of this economy) will not naturally come within the purview of any controls instituted by the Government through the implementation of a policy like this Drastic steps like demonetisation are called for if this problem is to be tackled One does not see why we are shying away from this direly needed step? In our underdeveloped (or developing) economy income from self-employment (agriculture and small business) will be about 65-70 % and wage/salary income as well as property income will constitute only 15-20% each or even less The large sector of incomes from self-employment is not amenable to effect control by the Government. In the case of property income it is more difficult to control rent than interest and dividends When three-fourths of the economy is out of these control measures, naturally the desired results could not be achieved. The manifestations of economic stagnation which resulted from the measures prompted our creative brains to innovate the new concept of stagflation (stagnation along, with inflation). Underutilisation of capacity, creation of scarcity and profiteering from these conditions of soaring prices are particularly preferred hunting ground for our trader-turned industrialists, defeating the normal market response of earning profit through making more supplies when demand is strong. The wage/salary-earning working people are the worst victims of such a tide of inflation since their real remuneration is eroded much more than those of other sections.

Holding the Price Line

It is widely believed that manpower is cheap in India. This is not only incorrect but the converse is true. Otherwise how is it that Japan buys Indian iron ore from Goa, transports it all the way to Japan, converts it into steel, fabricates it into finished goods, transports products all the way back to India and sells here at a lower price than the price of goods manufactured here. Indian manpower is one of the costliest in the world. Take any product and and see what is the cost of manpower per unit of production. If the price of goods and services have to be reasonable and stable, the cost of the resources used have to be less than the value of the output by a reasonable margin. Since manpower (muscle power plus brain power—manual plus intellectual labour) is the basic resource that creates all other resources like materials, machinery, etc, the relation between the value of the output and the input of manpower in the various sectors of the economy will ultimately determine the price level. In other words, human productivity is the deciding factor in holding the price line If work is more efficient and productive the prices will be reasonable and stable.

Linking Incomes and Prices to Productivity

Concrete efforts to increase human productivity and to link prices and incomes to productivity should form the core of the income policy. While unfettered interplay of social forces unrelated to repercussions on costs, consumer and public interests and widening income disparities between organised and unorganised sectors of the economy will not be conducive to our economic development, arbitrary freezing of wages and incomes or straight-jacket application of rigid formulae imposing uniformity of wage/incomes among

the various sectors, whether public or private, unrelated to the productivity of the unit will be counter-productive in positively promoting higher production of goods and services bringing down unit costs and increasing the living standards of people. Systems of material and moral incentives will facilitate achievement of higher levels of productivity. Collective agreements between management and trade unions concluded under productivity guidelines evolved in the overall national interests in consultation with the industry and labour will be helpful to promote economic growth. Since real wages of industrial workers have been stagnating inspite of substantial increases in productivity;(NCL Report) workers will only benefit from such a linking of wages to productivity.

A permanent National Board for Productivity, Incomes and Prices consisting of professional experts should be set up to keep a watch on the health of the economy, review changes in productivity incomes and prices and to issue guidelines for regulating incomes and prices based on productivity. The Government should evolve policies on productivity, incomes and prices, draw up criteria for regulating incomes and prices and issue them to the Board to administer The outline of such a policy is indicated in the Annexure

We too Can do it

Our productivity compared to that in advanced countries is (i) 1/3 in textiles and steel(ii) 1/7 in cement and aluminium (iii) 1/12 in aircraft and (iv) 1/18 in sugar industries Since most of the manufactured goods have several stages of production/distribution like (a) the primary stage of cultivation of raw materials or extraction of minerals (b) the secondary stage of industrial production or conversion and (c)/ the tertiary stage of transportation distribution and servicing the average productivity of 1/4 at each of these stages gets transformed into 1/16 productivity at the subsequent stage and results in 1/64 productivity for the manufactured product due to multiplier effect. This is why the ratio of the national income (total value of goods and services produced) in India when compared to advanced countries come only to 1/66 ($ 70 in India compared to $ 4,600 in USA). From the same analysis it is evident that if the productivity in each sector of the economy increases from 1/4 to 1/3 to 1/2 to 1 the national income will close the gap at a fast rate from 1/64 to 1/27 to 1/8 to 1 due to the same multiplier effect. When the productivity in each sector increases in arithmetic progression, the national income will increase in geometric progression. This also indicates that bringing down the gap in national income with advanced countries is not a hopeless exercise. Since we have seen in several stray industrial examples in India four or fivefold increase of productivity and even closing up the gap between India and advanced countries, it is evident that we can reach the level of their national income by increasing unit level productivity.

New Values, Attitudes and Methods

The widespread belief that the factors contributing to our low productivity is technological is not correct; the real causative factors are human. If we have to achieve higher productivity, an array of national characteristics, traditional values, deep rooted beliefs, patterns of behaviour, attitudes of mind, approaches to problems, work habits and job methods which are at the root of low productivity have to undergo a drastic change. What is characteristic of higher productivity achieved in advanced countries is the higher level of application of methods and techniques which are known to us also, not necessarily the application of more modern sophisticated methods and techniques with which we are unfamiliar—as is widely believed The gap between profession and practice is no where so wide as in India for which also the reasons are mainly attitudinal and behavioural Industrial managers and trade union leaders have a cardinal role to play in bringing about these changes. A productivity oriented policy of managing the human resource has to be evolved and implemented by them

The strategy to increase productivity in India will have to be designed to suit our past tradition and present conditions. Don't we have positive characteristics in our national tradition? The premium attached to moral values above material prosperity in our culture can be a very great asset, if we can motivate men to work harder, even when the rewards are less than proportionate. Have our people not sacrificed everything for fighting for national freedom?

India has to evolve its own path of economic development through self-reliance to motivate its great human assets, to utilise the considerable productive capacity already created, develop much more industrial strength, to create entrepreneurial spirit among men and to harness the vast potentialities of its material resources. We have to cast aside our inertia and change faster if we have to survive as a nation We should evolve new characteristics and methods of work best suited to the genius of India that will enable us to do better, to be more productive and to be real Karma Yogi's India has to awake and achieve excellence in productive performance This is the greatest challenge before the professions and intelligentsia in India today

Annexure

Outline of a Productivity Income and Price Policy

I Objectives

1. to achieve rapid increase in the production of goods and services for creating more employment opportunities for the unemployed and rise in real income for the working people.

2 to keep increases in money incomes below the level of increases in real output for creating surplus for reinvestment and development.

3. to maintain stable price levels and to lower them if possible

4. to maintain the strength of the currency

5 to increase exports and to reduce imports and maintain healthy balance of payments position

II Action Plan

1. drive for increased productivity more vigorous standards of performance at all levels, control of wasteful work practices and introduction of earnings—related benefits in all sectors of the economy with the co-operation of all concerned including political parties and trade unions.

2. higher investment in selected productive projects in various sectors on a priority basis (e g management of water resources for irrigation and power, strengthening basic industries, modernisation of traditional industry, starting agro-based rural industries etc).

3. formation of human capital through training and development in the

skills required for modern industrial society (e.g. entrepreneurial talent, management competence, trade skills, etc)

4. accelerated applied and functional Research and Development efforts including imaginative copying to reduce imports and promote faster economic development.

5 better financial management, cost control procedures and avoidance of waste to improve price levels and boost up exports.

6. keep under review the general movements of productivity, incomes and prices in general and profits and wages in particular, vis-a-vis larger national economic interests.

III General Considerations Regarding Productivity Income and Prices

1 Increases in money incomes and pricing policy of individual enterprises should conform to the objectives set forth earlier and the national interests outlined below.

2 The percentage increase in money income should be less than the average annual rate of growth in output, the latter figures will be the productivity guideline or norm for wage negotiations generally. Any deviation from this should be specifically approved by the Government based on a study by the NBPIP.

3 In applying the above norm to increases in income, adjustment has to be made for increases in costs due to reduction in working hours, improved welfare amenities, etc

4 Exceptional increases in income above the norm should be confined to (i) units where productivity increase has been exceptionally high (ii) where it is essential in the national interest to offer attractive terms to some occupational groups or (iii) where there is widespread recognition that the pay of a certain group has fallen seriously out of line with the level of remuneration for similar work and needs to be improved in the national interest.

5. Exceptional increases outlined above should be balanced by lower than average increases to other groups to keep the increases in income over the economy as a whole within the norm

6. Increases in profits should arise from increased efficiency and reduction of costs.

7. The average rate of increase of income from dividends should not be more than the average rate of increase in labour incomes.

8. Prices should be competitive.

9 Prices should not be raised except when (i) there are unavoidable increases in non-labour costs per unit of output which cannot be offset by reduction of other costs or return on investment (ii) Productivity cannot be increased or non-labour costs or return on investment cannot be reduced to cover wage increases according to the norms or (iii) there is no other way to forn capital needed.

10. Prices should be reduced i (i) productivity increases above th norm (ii) prices of material fuel services or capital costs fall or (iii large profits occur due to excessiv market power.

A Review Article

THE INDIAN POLITICAL SCENE

SANUJIT GHOSE

THE PRESENT study, related to quantitative enquiries on the election results in India, grew from a small beginning. The almost chance-coming together of a British student of Indian Politics and an Indian Economist-statistician with an interest in his country's public affairs. Prof Morris-Jones was no new hand in Indian political scene. He was invited to serve as Earl Mountbatten's constitutional advisor at the time of transfer of power in 1947. He had visited the country a number of times since then. Dr. Dasgupta taught econometrics in UK for about a decade and authored two pioneer studies, including one on the Naxalite Movement. Thus, the authors had the necessary background and the tools to take up such an extensive study covering the electoral data for 1952, 1957, 1962 and 1967, especially the last three The study was not aimed at an up-to-date history but rather at determining the method of analysis; for this purpose the run of 1952-67 furnished a sufficient series This period showed a fairly stable span so far as political relations and patterns were concerned.

The concentration of the present enquiry is on three aspects of Indian electoral politics, which are of exceptional importance; participation, competition and institutionalization A democracy is good because and, insofar as it is participatory democracy. Participation, however, is relevant not only as a democratic norm but also in many cases as a measure of the strength of the political system. India's party system has been described as at once 'one party dominant' and 'open'. In this situation much depends on degrees of opposition unity—and on measures of competitiveness. Competitiveness is of course, also a facet of participation, that of the candidates or aspiring politicians. The term institutionalization may be quite new, but, the phenomenon, and even the concept, are as old as political experience and reflection. With the birth of new states, if there are institutions which have been inherited, they have to be adapted; if for certain purposes, there are no institutions, they have to be created. The election mechanism is itself an institution but the focus of attention here is that which relates to the political organisation of the voters. Thus, the study seeks in a number of ways to ssess how far there are patterns and trends in this respect, how far there is movement towards the exercise of choice which cannot be arbitrary and directionless but consistent, meaningful and effective

While elucidating the states and the parties, the authors recall that drama is a presentation of human interaction, and politics can be presented as one type of drama While narrating the classification of parties, the states are divided as, (a) leading nationalist zones, like Bihar, Haryana, Maharashtra, Tamil Nadu, Uttar Pradesh, West Bengal, (b) 'mixed' areas, like, Andhra Pradesh, Assam, Gujarat, Punjab, (c) areas largely based on former Princely states, like, Kerala, Madhya Pradesh, Mysore, Orissa, Rajasthan A political typology of the tates is at once the most relevant but also the most dificult to attempt, for the criteria could be several

The important consideration in Indian politics is that the notion of a 'left' to 'right' range has to be used with caution If, we take the parties which are usually labelled 'rightist'—notably, on the all-India scale, Jan Sangh and erstwhile Swatantra Party—it would be generally agreed that we had two kinds of 'right', the one primarily 'nationalist' and the other primarily 'conservative' Most vividly this is exemplified in the virtual absence of rightist parties in West Bengal and the extreme feebleness most of the time of left parties in the states such as, Rajasthan and Madhya Pradesh. If, with all these qualifications we proceed to classify our state scene, we can see that four classes emerge fairly clearly in principle. First, we should seek to identify states in which the all-India parties had predominance The clearest members are Assam, Gujarat, Haryana Maharashtra, Mysore and Uttar Pradesh. A second class can readily be formed to consist of the two states wh Congress Party predominance l for substantial periods collapsed the face of the left pressure: W Bengal and Kerala. Third, we c designate (though less sharply) group of states where Congress Pa predominance had for periods h to bow before challenges comi from one or the other of the 'right sectors of the spectrum. In t group might be placed Madh Pradesh, Orissa and Rajasthan Fina Punjab and Tamil Nadu bel to a box that was off the linear sp trum defined by the loss of Congr Party dominance to regional partie the Akali Dal and the DMK

On top of 62 years as a national movement, Congress Party cou add 30 years as a political party, this long period we can say that t not less than the last half a centu it had been the organisation dom nating the country's political li It was, paradoxically, its good fortu to be locked in the struggle agai British rule for a very long perio that experience enabled it to attr most of India's political talents a then develop them into a great r servoir of skills—of mobilisatio organisation, negotiation and co promise This monopoly, based a combination of merit, charisma leadership and the party's own ima as a winner of freedom for t country, was so nearly complete t a large part of the opposition, wh eventually developed, received political education, in a way, wit Congress Party; in a certain me sure Congress Party moulded n only its followers along but al its opponents. Thus, two opposi changes took place on the one han the difference of interests and o nion became more glaring as t Congress Party became responsil for shaping and implementing gover ment policies; on the other hand, had larger benefits and rewards distribute. While one tendency forc elements to leave, the other impel some to join. (If some would d cribe this as the replacement romantic nationalism by normal p tics, others would say that ideal went out while opportunists came i

Of the parties on the left, t Communists were the first to achi organisational identity. With t

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Patterns and Trends in Indian Politics : ***An ecological analysis of aggregate data on society and elections; by Biplab Dasgupta and W.H. Morris-Jones; Published by Allied Publishers Private Ltd; Price Rs. 65.***

Books

great rift in 1964, the direction was not uniform over the country. The CPI(M) emerged in significant numbers only in the three areas of general communist strength, West Bengal, Kerala and Andhra Pradesh. The CPI was present in these states but relatively weak; on the other hand, it had a much better all-India spread. At the same time, CPI(M) ran into fresh difficulties when from its left side was spawned a further series of breakaways which came to form CPI(ML).

In the measuring exercise, the authors ascertained the degree of association between two sets of variables one was electoral and drawn from the official statistics of voting the other was the socio-economic and was derived from the census data of India in 1961 There were, of course, several problems to begin with. The initial problem was the selection of appropriate unit of area The electoral data was naturally arrived at in the form of figures for constitutencies which were those used for election to either the state assemblies or Parliament The census information, on the other hand, was available at the level of either state or district or subdivision of district The problem was to find an area which, while yielding a sufficient number of units of observation for statistical workings, would permit the bringing together of the two sets of data with least difficulty The best unit was that which combined the merits of substantial number, ease of data conversions and stability over time Thus, the choice fell on the district

Based on district-wise data on 24 socio-economic variables and many political variables covering four elections of 294 districts (for the sake of uniformity in comparison, as already explained), this is an exciting study on Indian politics in terms of such factors as literacy, urbanisation, social pluralism, land scarcity and past electoral behaviour The summary of findings indicate some interesting conclusions, like, high degree of consistency in the territorial distribution of participation, close correspondence between the level of development of a district and its voting turn-out, the Communist vote is relatively higher in developed areas, the opposite is the case with Jan Sangh. It is also interesting that more than two-thirds of the 'Strong Jan Sangh' districts also happen to be 'weak Communist' districts, which is consistent with their diametrically opposed political position A detailed examination of state-wise results showed that Bihar and UP were clearly 'multi-party' states; Andhra Pradesh, Assam, Maharashtra and Mysore were one party states (or one party dominant states); and eight states—Gujarat Kerala, Madhya Pradesh, Orissa Punjab, Rajasthan, Tamil Nadu and, West Bengal suggest two party situations (that is, two parties receiving 60 per cent or more in aggregate, the difference between the two being less than 20 per cent, with no other party receiving more than 15 per cent of votes).

As the authors admirably conclude, such as analysis calls for extension in time. Recent times have shown as to how urgent yet relevant such a study could be if extended to post-1971 election scene in the country. Especially now when for the first time in the history of the country a party other than the Congress Party i e. the Janata Party is dominating the Indian political scene. With a good number of analytical tables in each chapter, a survey of quantitative methods and an index at the end, this book would not only excite scholars and political practitioners, but even the common reader would find it quite interesting to go through. □

All About Social Change

Dimensions of Social Change in India *by M N Srinivas et al (eds), Allied Publishers Pvt Ltd New Delhi, 1977, Pages* 111+518, *Price Rs* 60

THE STUDY of social change in India has been a continuous preoccupation among academics as well as Government departments from different angles during the last two decades. Sociologists have been foremost in studying social mobility of our stratified society that has manifested itself in such diverse fields as political development, religion, family structure and institutions. Few things highlight the transformation of the society as the processes of rural and urban development under the impetus of economic planning through various programmes and projects. Political events of the recent past are also best understood in the light of sociological interpretations based on their synthesis.

The present volume containing contributions from 27 scholars is the edited proceedings of a National Seminar organised by the Institute for Social and Economic Change, Bangalore in 1972 with the cooperation of I.C S S R and I A S., Simla. The editors have, apart from giving a good introduction to the proceedings, ably arranged the valuable papers under 8 headings viz.: (i) concepts and methods; (ii) mobility and stratification; (iii) religion and change; (iv) tribes and change; (iv) rural social change; (vi) family, socialisation and change; (vii) communications and change; and (viii) new institution building. The relevance of the papers extend over larger areas of interest than what their titles indicate Notable contributions are those by Rajgopalan, Yogendra Singh, Roy Burman, Oomen and Yogesh Atal. There is a good deal of insight in some of these papers which, however, hang loose in the total context. The authors are mostly well-known in their respective areas of research (sociology, social anthropology, economics, human geography and political science) In some cases they are also noted for their original contributions in inter-disciplinary field.

The presentation of papers in the Seminar had evidently taken place leaving the deliberations and the drawing of conclusions open-ended. One wonders whether the fads of the Indian School of Functionalism have reached their tether end! Apparently, Indian sociologists either in their organised bodies or in the midst of scholars of other disciplines are chary of discussing the pros and cons of sociological planning in India The system-functional concept of planning too has not made much headway although this is very much in vogue abroad. There is a certain degree of fear that is also noticeable about the future of the profession, possibly on account of impoverishment that is in store, if the present trends are doggedly maintained. Perhaps, the

absence of clear concepts of sociological planning on the one hand and the desire to reorganise the man-made ennvironment in India with its cultural landscape on the other are the factors at the root of the problem.

There is, perhaps, no more of any sort of crisis of relevance in the disciplines of sociology in India to the extent to which fears have been expressed before. The crutches of Western social theory are still there and those who want to discard them have been the butt of criticism amongst the profession in India. A perusal of the volume is apt to convince the reader as to how varied are the facets of thought underlying the papers and what makes the task of formulating sociological theo under Indian conditions so v difficult.

The Editors have dedicated attractively produced volume to memory of professor A.R. Wa (1888-1971) a pioneer in the de lopment of sociological studies India.

—B.N. N

Contours of Cooperation

Contours of Indo-Soviet Economic Cooperation *by Girish Mishra; Published My Allied Publishers, New Delhi; Pages* 152; *Price Rs* 25.

THE FIRST inter-governmental economic agreement between India and the Soviet Union signed 22 years, on February 2,1955 The conclusion of this agreement laid the foundation-stone for the rapid and steady growth of mutually beneficial economic ties between the two countries At present about 80 projects embracing various fields of economy so vital for the country's industrialisation and progress, are under construction in India with the economic and financial assistance of the Soviet Union. A number of these projects have already been put into operation

Indo-Soviet economic relations have played a major role in the country's economic development since early 1950s. "Thanks to economic cooperation with the Soviet Union", Girish Mishra says, "India now possesses a strong public sector and a whole range of basic heavy industries. This cooperation encompasses a large number of activities from steel to agriculture, oil refining and exploration, shipping, drugs, technical training and designing, etc"

The book is divided into 11 chapters. The first two chapters focus attention on the 25th CPSU Congress and 10th Five-Year Plan of the USSR from the point of view of assessing the prospects of further development of economic relations between the two countries. It has been the continuous endeavours of the CPSU to forge and strengthen ties of friendship and cooperation with India

The chapter "Indo-Soviet Trade" discusses the growing volume of trade turnover which has gone up from 1.3 crores in 1953 to Rs 700 crores in 1975 and its diversification over the decades. The next chapter throws light on economic cooperation between the two countries and India's industrial development. The Soviet Union has provided credit to the tune of Rs. 10,220 million for various projects. About 99.13 per cent of the Soviet aid has gone to public sector projects This shows the qualitative difference berween the Soviet aid and the Western aid of which 25 per cent has gone to finance the import of foodgrains and consumer goods. Other chapters are on cooperation between the two countries in agriculture, communication, economic planning, defence and science

In the book Girish Mishra presents a comprehensive survey of the economic relations between the two countries from 1953 onwards. author has discussed all facets economic relations between India the Soviet Union with great cla supported by adequate facts data

Girish Mishra also discusses innovations made by the econo relations between the two countr These innovations include the syst of rupee-payment and producti cooperation.

The book has been written lucid style and simple language nicely-produced book, it meets needs of those who interested in the study of In Soviet relations.

—Pritam

The Faces of Sun God

Surya—The Sun God: *by Mrs Shakti M. Gupta, Published by Somaiya Publications Pvt Ltd Bombay, Pages* 71, *Rs*. 55

SURYA, the Vedic god of light is gloriously pictured as riding e golden chariot that traverses the sky with a watchful eye observing the good and bad deeds of both mortals and immortals. The twelve Adityas in various important aspects of the deity make the study of Surya an important cult complex The bringing together of Surya, Vishnu, Brahma and Shiva identifies him with the concept of the Trinity itself The description of the three Vedas as Surya, the solar orb, the musical lines of the Sama-Veda, and the personified deity in the blazing flame of the hymns of the Yajur-Veda illustrate the three Vedas as shedding solar light

In ancient India, the worship of Sun was a great cult in itself. It was Sankara who brought together various warring cults and created a a synthesis in the Panchayatana. Famous temples were built for Aditya at Martanda in Kashmir in the north, at Konarak in Orissa in the East, and Modhera in the West.

From Kashmir to Kanyakumari every devout Hindu bows in obeisance to the rising Surya and offers his prayers and thanks for the gifts the almighty Surya bestows on h manity Not a flower can flow not a soul can stir, not a river flow but for the magnanimity the mighty Surya And Surya his wrath parches fertile fields, su dry man and material, perva the darkness within and witho Such are the blessings and the cur of the great Surya. Said Krish in the Gita: "That splendour issu from the Sun that enlighteneth whole world, that which is in t moon and in fire, that splando know as from Me"

The author has studied the the elaborately from every point of vie She has traced the origin of t concept from Vedic times, discuss the antiquity of Sun worship fro historical records and inscriptior the truth of the belief that Su bestows health, the iconograpl form of Surya, the famous templ associated with the Sun-God, t various deities associated with hi as well as his consorts and attendant his place among the planets h importance in composite figures a so forth, making it a very valuab contribution to the solar symbol ar its deity in India.

The book has adequate illustratio which will assist the reader and he him in getting some background Surya.

—Nitish S. Re

Development Notes

New BHEL Plants Will Save Foreign Exchange

The country will save nearly Rs 65 crore in foreign exchange annually when two new manufacturing plants of the Bharat Heavy Electricals Limited (BHEL) - one at Hardwar and the other at Tiruchirapalli - reach full production. The central foundry forge plant, being set up with French collaboration at Hardwar, will manufacture sophisticated castings and forgings to meet not only the requirements of BHEL but also nuclear defence, ship building, steel and allied industries. To manufacture power plants BHEL has been importing Rs 19 crore worth of castings and forgings every year from developed countries like Russia, US, Japan, UK, France and West Germany.

The stainless steel tube plant, coming up at Tiruchirapalli is expected to save about Rs 45 crore per annum in foreign exchange. The plant will manufacture 40,000 tonnes of boiler quality tubes annually, in sizes ranging from 14 mm to 159 mm. Of the total production, 65 per cent will be consumed by the high pressure boiler plant of BHEL at Tiruchi and the balance will be supplied to other boiler makers within the country. The Hardwar plant which involves a capital investment of Rs 34.20 crore will ultimately produce 6,500 tonnes of steel castings, 3,250 tonnes of steel forgings and 4,000 tonnes of billets and blooms annually.

Saudi Loan for Power Projects

An agreement covering the first ever loan to India from the Saudi Arabian Fund for Development to the tune of $ 100 million has been signed in New Delhi. The loan will finance the Srisailam and Nagarjunasagar power projects in Andhra Pradesh. The Saudi Fund was created in October 1974 after the oil crisis with an authorised capital of three billion dollars to assist developing countries groaning under the crushing blow caused by the oil price hike.

The Srisailam project envisages the erection of four 110-Megawatt power generation units with provision for another three later at a total cost of Rs 208 crores. The first unit is expected to be commissioned in March 1979, the second, third and fourth in October 1979, March 1980 and October 1980. The Nagarjunasagar project, which is due for commisioning in August this year will cost Rs 15.60 crore. During 1976-77, a sum of Rs. 6.26 crore was spent on this project. The Saudi Fund will take into account the entire expenditure incurred on the project from April 1, 1976, till its completion, which may amount to Rs. 12.97 crores.

World Bank Loan for Irrigation Project

The World Bank has sanctioned a loan of seven million dollars (about Rs 6 crores) to Assam for undertaking irrigation and research and extension on agricultural development in the State. The loan will bear an interest of six per cent payable in 10 years. The scheme is divided into two parts: irrigation, to change the cropping pattern in the State mainly in the flood prone districts and research and extension. Seventy per cent of the total expenditure will go for irrigation, 20 per cent for extension and 10 per cent for research.

The irrigation scheme aims at changing the cropping pattern in the districts of Goalpara, Kamrup and Nowgong. It will provide enough irrigational facilities so that crops can be raised during winter months and saved from devastation of flood. Irrigation will include sinking of shallow and deep tubewells, lift irrigation and digging of canals. The scheme, known as "Quick Maturing Agriculture Scheme", is expected to be completed in three years time. The World Bank experts will supervise the progress of the scheme and give necessary guidance and advice.

People's Housing Programme

The Karnataka Government has sanctioned a sum of Rs 4.81 crores for construction of houses and huts in the State under the People's Housing Programme during the current year. Each taluk will get Rs 2,75,000 under the scheme. Fifty per cent of this amount has been released for taking up the construction and the other 50 per cent will be made available in due course. The Deputy Commissioners have been empowered to select the number of beneficiaries in various taluks, out of the three schemes now under operation in the State, depending upon the response from the beneficiaries and the local conditions. The choice about the type of houses will be left to the beneficiaries.

The State Government is providing financial assistance to housing programmes under three categories. Under the normal People's Housing Scheme, the total cost of a house is Rs 2,500 of which the beneficiary has to contribute Rs 500 in the form of cash, kind or labour. About 75,000 houses have been sanctioned up to the end of 1976-77 under the scheme under different series and of them 62,331 houses were completed upto the end of March 1977. The construction of the remaining houses is progressing.

The Experimental Low Cost Housing Scheme was launched during 1976-77. Under this, 8,750 houses were sanctioned with a subsidy of Rs. 1,250 each upto the end of March 1977 and 4,430 houses were completed. The third scheme relates to the construction of huts. Wooden material worth Rs 250 a hut would be supplied for construction, on an experimental basis. As many as 10,044 houses were completed during 1976-77.

Regd. No. D(D)-152

Industrial Complexes in Private Sector

Twentyfive industrial complexes mostly in the private sector, would be set up in Kerala in the current financial year. Investment in each unit would be between Rs 30 and Rs 50 lakhs The locations, though not yet decided, would depend upon the availability of raw materials. The products of a large number of these complexes would be export-oriented. Some would be ancillary products.

A technical team would be entrusted with the task of selecting the entrepreneurs, location of the site and construction of the complex The export-oriented products that could be manufactured by these units, will include leather goods, garments, building material and paints. There were good markets for these in Gulf countries The Industries Department has prepared a scheme to start industrial townships in the district headquarters Some municipalities had already started acquiring the necessary lands for the purpose

IDA Credit for Irrigation System

The International Development Association (IDA) an affiliate of the World Bank, is extending a credit of $ 23 millions (Rs. 20 70 crores) to help finance rehabilitation modernisation and extension of an irrigation system in Tamilnadu The $ 46 million project is designed to minimise water losses in conveyance and operation of the Periyar-Vaigai irrigation system in Tamilnadu. Water savings will be used to introduce double irrigation for the first new areas, presently rainfed, under irrigation for the first time At full development the project is expected to increase annual rice production by about 60,000 tonnes, resulting in net foreign exchange saving of $ 9 6 millions. The project will also generate about 10,000 man years of agricultural employment

Export Corporation Business Doubles

The toal turn-over of the Uttar Pradesh Export Corporation more than doubled during 1976-77 as compared to the year 1975-76 Its export sales went up by 130 3 per cent and internal by 17 3 per cent The Corporation registered a turnover of Rs 312.19 lakhs during 1976-77, as compared to Rs 154 76 lakhs in 1975-76 and increased its profits from Rs. 2.93 lakhs to Rs 4 lakhs. The Corporation also set up 21 carpet weaving training centres, costing Rs. 20.44 lakhs, a readymade garment complex, costing Rs. 31.18 lakhs at Loni, during 1976-77 and incurred an expenditure of Rs 140 lakhs, as project cost, on the carpet yarn spinning mill at Bhadohi

The Corporation will hold a buyer-seller meet at Muscat and Abu Dhabi, to explore export markets in West Asia Some of the items for which export market would be explored are engineering items, building materials, leather goods, handicrafts and food products

Substantial Rise in Handloom Exports

There has been a 24 per cent increase in the exports of handloom goods, both cotton and non-cotton, during the financial year ended March 1977, as compared with those for the financial year ended March 1976 According to provisional figures available, exports for 1976-77 at Rs. 241 crores show a rise of Rs 46 crores over Rs. 195 crores achieved in 1975-76. Exports of cotton handloom fabrics during April 1976 to March 1977 have gone up by 22 per cent to Rs. 47 98 crores from Rs 39 35 crores in the corresponding previous period, following the increase in terms of quantity to 66 million metres from 58 15 million metres previously

Exports of cotton handloom made-ups during 1976-77 are higher at Rs 19.54 crores against Rs 13 28 crores in 1975-76 Likewise, exports of cotton handloom readymade garments are reported to have gone up to Rs 150 crores from Rs 123 50 crores. The trend in the export of other important cotton handloom fabrics and materials like real Madras handkerchiefs, lungies, cotton floor-coverings and bedspreads is also quite encouraging.

Meteorological Centre For Punjab

A new meteorological centre is being set up in the Punjab by the Indian Meteorological Department. The Centre will be equipped with telecommunication facilities for speedy collection and dissemination of meteorological data, forecasts and warnings and will have close link with the Punjab Agricultural University for effective utilisation of weather information for the agriculture of the State.

At present weather forecast for Punjab is prepared in New Delhi and since there is no telecommunication link between the forecasting office and the AIR Jullundur or PAU, the weather information does not reach the farmers in time.

The PAU has a group of trained scientists to advise the farmers on the weather-oriented farm operations This group which includes crop ecologists, irrigation specialists, agrometeorologists, crop specialists, entomologists and epidiomologists will interpret the weather data for its application to farm operations. This will thus provide a weather advisory service to the agriculture of the State well in advance.

Dramatic Rise in Foreign Exchange Reserves

India's foreign exchange reserves have spurted dramatically in the new financial year, and have now hit the $ 4,000 million mark. Between April 15 and May 27, the reserves shot up by Rs. 413 crores, giving an average rate of almost Rs. 70 crores per week. Thus the country's foreign exchange holdings have increased in the six weeks by almost as much as they did to the previous four months. In spite of considerable liberalisation of import licensing the country is enjoying a favourable trade balance To this has to be added an inflow of invisibles which have now increased to almost Rs. 150 crores per month, or Rs 1,800 crores per year. Over and above this the country will be receiving an estimated Rs. 876 crores this year as net foreign aid.

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Yet as late as 1900, people disputed and debated the reality of the atom. The great philosopher Ernst Mach in Vienna felt there was not a grain of truth in the theory. The noted chemist Wilhelm Ostwalt rejected the concept. And yet, one man at the turn of the century defended the reality of the atom. He was Ludwig Boltzmann. Had anti-atomic doctrines won the day, our advance in physics and biology would have been set back by perhaps a hundred years. Boltzmann launched a passionate struggle to proclaim the truth on fundamental grounds of theory. In 1906, at the very moment when the atomic doctrine was going to win, he thought all was lost and committed suicide. But his immortal formula remained. And today the atom releases a world of energy for mankind.

Development of technology makes it possible to tap that energy. We at L&T have spent an entire decade generating a rich reservoir of nuclear fabrication technology, preparing for the great moment when we would fabricate critical equipment for India's nuclear power projects—a moment like the one when we recently handed over the nuclear reactor calandria to Madras Atomic Power Project I.

As this moment is linked with other similar ones in the past, L&T peers into the future and continues to plan the progress of nuclear technology. After all, the atom holds within itself infinite possibilities expressed by the poet William Blake who yearned "to see a world in a grain of sand". Science backed by technology unfolds that world and finds a future for India in atomic power.

Nuclear Division

LARSEN & TOUBRO LIMITED

P.O. Box 278, Bombay 400 038.

YOJANA

Volume XXI Numbers 13 & 14
New Delhi
15 August 1977
24 Sravana, 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan, but is not restricted to expressing the official point of view.

Chief Editor
K.G. Ramakrishnan

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Editorial Office: Yojana Bhavan, Parliament Street, New Delhi-110001. *Telegraphic* **Address:** Yojana, New Delhi, **Telephones:** 383655, 387910, 385481, extensions 402 and 420. **Circulation:** Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription ; Annual—Rs. 18, Two years—Rs. 30. Three years—Rs. 42, **Foreign Subscriptions:** One year—£2.70 or 5.50. Two Years—£4.50 or 9.00. Three Years—£6.30 or $12.50 Single copy—twelve pennies or 0.25.

Nationwide Economic Census

Dependable statistics constitute an important infrastructure for sound planning. During the last three decades a fairly adequate system of agricultural statistics has been built up, although the system still admits of improvement. The availability of statistics for the non-agricultural sectors of economy like manufacturing, trade, transport, construction and services is not satisfactory. While data are being regularly collected for some organised segments, there is almost complete lack of reliable data on other unorganised segments. For example while data on manufacturing establishments registered under the Factories Act 1948 are being regularly collected under the Annual Survey of Industries, there is no regular collection of dependable statistics for non-factory units, that is manufacturing establishments using power and employing less than 10 persons or those not using power and employing less than 20 persons. There are similar chunks of grey areas in the sectors of trade, road and water, transport, construction and services. Paucity of information in the unorganised segments has led, on the one hand, to the neglect of development planning of these sectors on rational lines and on the other hand, to exaggerated claims in respect of some segments. The importance of these sectors may be realised from the fact that they are estimated to account roughly for about one-fourth of the national income and about one-fifth of the country's labour force. It is clear that they have an important role to play in the country's development.

The scheme

The Government of India is launching in September-November, 1977 a countrywide economic census to ascertain the structure, activity and performance of the unorganised segments of the non-agricultural sectors of economy. This will be followed by sample survey of individual sectors in the next two or three years The scheme will provide information on the distribution of establishments by location and activity and also estimates, at the district levels of the values of inputs and outputs, investments, for the unorganised segments of each major sector of non-agricultural economy.

The proposed economic census, estimated to cost Rs 3.5 crore is of great importance from the point of view of streamling the existing statistical system Previous attempts to organise surveys of small industries, distributive trade, etc., have been partial and sporadic. An integrated economic census is, therefore, an essential step to provide the requisite information for planning, administration and the compilation of national accounts. It will facilitate planning at the state and district levels and the identification of the relatively backward areas in the States. The economic census stands on the same footing as the population and agricultural censuses.

The programme

The work will be carried out according to a phased programme of a census of all non-agricultural establishments in urban and rural areas, followed by sample surveys of selected segments. The census will collect basic information as regards location, management, type of activity, number of persons employed and the nature of goods and services produced. The sample surveys to be conducted at a later stage will seek from the selected establishments of the unorganised segments of the non-agricultural sector, detailed information particularly on the values of inputs, outputs, employment, investment, and the like. It will canvass a fairly large sample of establishments from each sector to provide estimates of reasonable accuracy at the district level.

(Contd. Overleaf)

For the purpose of the economic census, an establishment will be taken to be a unit or a household which undertakes non-agricultural economic activities and employs at least one hired worker on a fairly regular basis. It is estimated that there are about three million such establishments in the country.

The organisation

The overall responsibility for the organisation of the census vests with the Central Statistical Organisation, while the field operations will be the concern of the state statistical bureaus As the census is a large-scale operation spread over the entire rural and urban areas, the part-time services of a large number of field staff will be drawn from State administrations to work under the direct guidance and supervision of the state statistical bureaus for the duration of the census operations For the organisation of the sample surveys in the second phase, the resources of the National Sample Survey Organisation and the associated field services in the state statistical bureaus will be utilised to the largest extent possible. The whole programme is guided by an advisory group comprising representatives of the concerned Central Ministries, a few state governments and other user organisations.

Co-operation from the public

The success of the programme will entirely depend on the information which the respondents give Accurate information will help the establishments participating in the census by drawing attention of the authorities to the areas of concentration of important activities and their problems in improving the organisation It is, thus, essential that every respondent should give whole hearted cooperation in making available the needed information to the best of his ability.

Confidentiality

The information gathered und the scheme will be put to use pure for statistical purposes. The info mation relating to individual ente prises will be kept strictly confide tial and will in no case be accessib to any individual or organisatio private or government, includi tax officials or controlling auth rities

The first phase of the projec namely, the census, will be carri out in September-November, 197 As a prelude to the main census, pilot census was conducted in o district each in 24 States/UTs in Ja uary-February, 1977, with a view gaining the requisite procedura organisational and operational e perience for carrying out the ma census. In the light of the finding the programme for the countr wide census is being formulated

Engineering for Harmony

R. K. SARAF

THE ENVIRONMENT we commonly talk of comprises air, water and soil It is evident that the environment should be maintained congenial enough for a comfortable living. To have a favourable environment, one should have a certain understanding about it.

From time immemorial, human activities for betterment of living standards have been affecting the environment, most of the times adversely. The progress of mankind, ironically enough, is closely associated with environmental degradation A good compromise is possible by way of streamlining human activity in such a manner as will not pollute the environment heavily.

Nature has bestowed upon the environment an immense assimilation and self-purification capacity. As long as the discharges of waste materials do not exceed this capacity, the environment can rejuvenate.

Genesis

While it is not easy to predict the self-purification capacity unmistakably, the best strategy in efficient management of the environment lies in the adequate treatment of waste materials and its controlled discharge to the environment so that it can purify itself. This is precisely the direction in which research and development activities are oriented in the field of environmental engineering

In the year 1955, an epidemic of infectious hepatitis broke out in Delhi It resulted in the morbidity of about 30,000. Investigations of the possible causes led to the revelation that the potential source could be the gross pollution of Jamuna by sewage. It resulted in water almost like a weak sewage being supplied through the water distribution system The episode came as an eye opener and the concept of establishing a national capability to develop knowhow indigenously to prevent recurrence of such incidents gained momentum.

While work in this field was being done in several institutions in the country, it was considered desirable to establish an organisation to undertake R&D activities in this field exclusively. Thus came into being NEERI, the National Environmental Engineering Research Institute (formerly Central Public Health Engineering Research Institute) in the year 1959 at Nagpur, under the Council of Scientific and Industrial Research

While sophisticated methods have been developed for possible use in urban areas, the Institute has always been seized with the special situations encountered while dealing with environmental sanitation in rural areas. Sanitation facilities suitable for rural areas are being introduced through research-cum-demonstration projects in some of the villages around Nagpur as a joint venture with the Zilla Parishad, Nagpur In view of its achievements, NEERI has been recognised as a WHO collaborating centre on community water supply, waste disposal and air pollution control. It has also been selected by the United Nations Environment Programme (UNEP) Nairobi, as a centre for stepping up air and water pollution monitoring activities in the ESCAP region.

Water Treatment

Water, as available in the environment, is a major recipient of waste materials Hence, its quality is required to be updated for human consumption and other usages. In order to tune its quality, water is required to undergo one or more of these unit treatment processes: coagulation, sedimentation, filtration and disinfection. Each of these unit processes has been probed into with a view to improve efficiency, reduce cost and make maximum use of indigenous materials.

A series of coagulant aids have been prepared from locally available materials to reduce alum consumption in water treatment. These have been effective. Savings in alum mean savings in sulphur, an imported constituent that goes into the making of alum.

For on-the-spot disinfection of individual waters, disinfection tablets and chlorine ampoules have been developed. These have been found very useful particularly as emergency measures during floods. To provide a simple mechanism for continuous chlorination of well water, a "chlorine cartridge" made of earthenware pot(s) has been developed. It works effectively for 10 to 15 days in medium sized wells.

In order to assess the effectiveness of the chlorination, a simple pocket kit called "NEERI Chloroscope" has been developed to estimate visually its residual chlorine.

Excessive fluorides in water (permissible level 1 mg/l) have been observed in several areas like Andhra Pradesh, Rajasthan, Maharashtra, Tamil Nadu and Madhya Pradesh. To remove these excessive fluorides, NEERI has developed the "Nalgonda technique". It comprises addition of lime, bleaching powder and alum to fluoride bearing water in sequence and allowing a certain period for flocculation and sedimentation. The process gives a filtrate devoid of the excessive fluorides The process is simple, easy to adopt and very cheap.

Yet another achievement is a finding that high grade bituminous coal can substitute imported anthracite medium in double layer water filtration. Using this indigenous medium, double the output has been obtained without any deterioration in the filtrate quality. It has thus potential applications in the existing overloaded water treatment plants.

A domestic iron and manganese removal unit, a filter aid and membrane filter from indigenous materials are the other important achievements of the institute.

Leak Detection Surveys

Even if the raw water quality is tuned up and supplied for domestic consumption, it does not by itself ensure the safe reach of such water at the consumer's tap. In the comp-

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lex network of water distribution system, several things happen. Through leaks it is reported that up to 40 per cent of the water distributed is lost. In the absence of adequate pressures, the contaminated water outside also can infiltrate into the pipeline. If the wastage through leaks alone is avoided, the urgency of tapping additional water resources for augmentation can be deferred to some extent. This is a very sound consideration for the profession. NEERI has demonstrated in several cities such as Aurangabad, Bombay, Delhi, Lucknow, and Madras the various techniques of preventive maintenance such as leak detection surveys, determination of C-value for pipes and swabbing. This has been welcome as a boon by the civic authorities

Waste Water

Waste water, in its paralance, is a common term for used-up water, domestic sewage and industrial effluents. Waste waters usually terminate into a water body and sometimes on to land. When let out into a water course, the constituents in the waste water tend to consume the dissolved oxygen in the water course for their oxidation This depletion in oxygen level causes the biota to undergo a stress, sometimes die and consequently putrify. Treatment of waste waters aims at reduction of the harmful constituents, so that the ecology of the biota in water course willl rejuvenate.

Usually, physical and chemical processes are also utilised judiciously to get rid of the pollutants in wastewater. Towards waste water treatment, NEERI has assessed the suitability of three low cost waste treatment methods, namely, stabilisation pond, aerated lagoon and oxidation ditch. Compared to conventional treatment methods like trickling filter and activated sludge process requiring sophisticated mechanical equipment and skilled personnel for operations and maintenance, these low cost methods require none of them (except perhaps a motor for driving waste water into the system and a rotor for mechanical aeration and yet there is no compromise on the efficacy of treatment.

These methods, either singly or in combination, are found to be adequate in most of the cases of industrial effluents as well. This has been assessed by the Institute while examining the amenability of several industrial wastes to chemical and biological treatment. The following are some of the examples: synthetic drugs, photofilm, pulp and paper, rayon pulp, strawboard, pharmaceutical, chemical, antibiotic, high explosives, fertiliser, textile, petrochemicals, starch, steel mill, electroplating, distillery, coffee, slaughter house, tanneries, sago and dairy. A number of these plants are functioning well in the country.

The treated effluents are found to support the growth of fishes. Besides fish culture being an economical proposition, this shows that water courses can well receive the treated effluents.

Sewage Farming

NEERI studies on differentially diluted sewage with and without supplementation by NPK have shown that sewage, when diluted with water in ratios of 1 : 0.5 and 1 : 1 and fortified with fertilisers gives a balanced growth of crops and maximum crop yield It also brings about efficient utilisation of sewage nutrients

Towards a fear expressed for using raw sewage for irrigation of vegetables that are eaten raw, NEERI has found it an economical proposition to cultivate essential oil bearing plants like citronella and mentha, the extensive use of which for medicines and cosmetics is presently met through imports

Viruses

Treated waste water effluents, inspite of meeting standards set in terms of physico-chemical, biological and bacteriological parameters can yet contain considerable viral load and hence deserve to be thoroughly disinfected before discharge.

NEERI has developed a modified membrane filter method for detection and enumeration of viruses from wastewater. Further, a new method for concentrating viruses from large volumes of water has also been developed wherein the water is filtered through a bed magnetic iron oxide.

Air Pollution

Although of a relatively recent origin, the problem of air pollution has deserved attention in many pockets of the country. NEERI has set up a national network in nine select cities to monitor common air pollutants such as suspended particulates, carbon monoxide, and oxides of sulphur and nitrogen. It is hoped that the long term data on these air pollution parameters will eventually help in evolv Indian Standards.

On request, industrial premi and environs are surveyed to amel rate air pollution problems, sho they exist. Such surveys are carr out for cities as well. Assistance also rendered in deciding upon lo tions of future industries in vi of the air pollution consideration

Solid Wastes Management

Dumping of city refuse is a co mon sight even in a metropo NEERI has assessed the char teristics of city refuse from as ma as 33 important typical cities. Tl investigation is an important p lude to assess amenability of c refuse to composting and incinei tion. On request, NEERI und takes feasibility studies to sugg alternatives for collection, trar portation and dispsal of solid wast

Biogas

Night soil, cattle dung as well city refuse can be anerobically c gested to yield biogas with ri fuel value In the context of ener crisis, this R & D effort has gre significance. A night soil digest is being operated in the premises Central Jail, Nagpur, using tl night soil from the jail inmate The biogas generated is actual being used for its calorific valu Preliminary trials in deriving biog from city refuse have been e couraging. These studies are bein scaled up further.

Rural Sanitation

Fecal contamination of wate an soil are the major identified reason for poor health and well being c rural communities. A joint ventur by NEERI and Zilla Parishad Nagpur is in progress in ten villa ges around Nagpur to assess th morbidity pattern before and atte providing bare minimum sanita tion facilities

Instrumentation

A regular programme has bee initiated to develop indigenou equipment, wherever feasible Th following are a few examples win speed and direction recorders fo collecting micrometeorological dat useful for air pollution survey work NEERI Chloroscope for estimation of residual chlorine in water; an high volume air sampler and multi gas sampling kit for simultaneou sampling of several gaseous pollu tants. Sophisticated instrument such as ultraviolet, visible infra

(*Contd. on page* 17

Industrial Toxicology

C. R. KRISHNA MURTI

ONE OF THE inevitable consequences of industrial development and modernisation of agriculture is the introduction of a variety of new products including chemicals into an environment hitherto free from them. It is believed that we may have to deal with near about ten thousand such products by the end of this century. Many of these are potentially harmful to human health. Workers in industry are directly in contact with them for prolonged periods and a number of diseases are already being recognized as a result of such occupational exposure The public at large is indirectly exposed to them in their day to day lives. Due to differences in climate, traditional habits, malnutrition and co-existent parasitic infestation, the health hazards posed by these chemicals to the population can assume a pattern altogether different from what has been noticed in industrialized western countries. Here is an area where import of technology is not feasible

The establishment of the Industrial Toxicology Research Centre at Lucknow by the Council of Scientific and Industrial Research in November 1965 owes its origin to the realisation of the need for identifying human diseases and disabilities posed by industrialization and for devising appropriate curative and preventive measures. The youngest in the chain of national laboratories, the Centre is unique insofar as it is the only institution of its kind in South-East Asia.

Industrial Dusts

In the mining and in the processing of ores, in the silicate and asbestos based industries, in the quarrying and building industries, in the textiles, jute and coir industries, our workers are exposed to inorganic or organic dusts which, when inhaled over prolonged periods, cause various lung and respiratory disorders. Workers who carry tubercular or fungal infections are believed to be more susceptible to the toxic action of dusts. In view of this, studies have been made to find out the role of infection and dietary factors in modifying the course of the disease caused by dusts. Techniques for reproducing the human disease in experimental animals have been standardized.

The researches conducted at the Centre on experimental silicosis and asbestosis have indicated that silicic acid solubilized from dust combines with membraneous structures and organelles in the target tissue resulting in a variety of biochemical disturbances eventually leading to excessive deposition of collagen. Experimental studies have provided some clues for devising preventive therapy which need further elucidation before clinical application. *In vitro* models based on cultured animal cells and human red blood cells have been set up to investigate the nature of the toxic action of dust and its relation to the histopathological charges noticed in experimental animals and human victims. Particle size studies have indicated that besides the chemical composition, particle size is of critical significance in determining the course of the disease caused by a given dust. Deposition of the dust in lymph nodes appears to accompany other histological changes and the relevance of this observation to the defence of the individual against dust disease needs further investigation.

A health survey of workers handling hemp has led to the identification of an allergic condition characterized by cough, breathlessness etc A vaccine prepared from hemp and the associate microflora has shown promise in alleviating the condition of the workers. Encouraged by this, a similar approach is being attempted to evaluate vaccine therapy in lung disorders in cotton textile, jute and coir workers.

India ranks third in the world in the production of manganese ore. Around one hundred thousand workers are employed in manganese processing and its use in alloy steel plants, ceramics and dry battery manufacture. Exposure to manganese causes in many workers a kind of nervous disorder resulting in behavioural disturbances.

Studies in experimental animals in which manganism was induced have shown that deposition of manganese occurs in brain subcellular organelles. Early detection of toxicity is possible by the use of two diagnostic tests developed at the Centre. These tests relate to the assay of adenosine deaminase activity in serum and cerebrospinal fluid and the estimation of calcium to phosphorous ratio in serum. These tests have been applied in a few cases of manganism among mine workers in central India as well as welders in a Bombay dockyard The behavioural changes noticed in manganism appear to be related to disturbances in the metabolism of catecholamines and the significance of this in therapy is being explored Iron deficiency in experimental animals makes them more susceptible to the toxic action of manganese than control healthy animals This observation assumes significance in view of the generalised anaemia reported among our industrial workers.

The efficacy of a number of metal complexing agents was investigated in removing manganese from the tissues of animals in which manganese poisoning was experimentally induced. Besides EDTA and its derivatives, the combination of Paminosalicylic acid and isonicotinic acid hydrazide – a commonly used anti-tubercular drug is very effective in mobilizing manganese from tissues and helping in their rapid elimination from the body Efforts are being made to test the utility of this finding in clinical cases of manganese poisoning.

Pesticides

In order to increase the output of food resources commensurate with our growing population, the increasing use of insecticides, pesticides, weedicides and agro-chemicals has become unavoidable. The assessment of the long-term effect of such widespread use of agrochemicals on the farm workers and his ecological partners has assumed added significance. In view of the known toxicity of these agents and the relatively low level of lite-

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racy among the rural population, there have been a few tragic instances of deaths due to contamination of grains with pesticides.

The research programme in this area has concerned itself with mapping the neurotoxic effect of pesticides, particularly on behaviour as revealed by pharmacological and metabolic studies Test systems have been evolved to monitor such ill-effects on brain and other tissues as well as eventual mutagenic effects by following observations in bone marrow chromosomes and malformations in the embryo. Attention has also been paid to find out appropriate remedies to counteract both the acute effects as well as side neurotoxic effects of pesticides. Currently, interest is focussed on studying more extensively the effect of chronic exposure to pesticides such as endosulfan, malathion, quinalphosph etc which are likely to be used in our country for the coming few decades and for the manufacture of which indigeneous know-how is being developed in our sister national laboratories

Plastics and Petroleum Products

The use of plastics and synthetic polymers in our daily lives as containers for storage of water and food articles has become widespread. The Centre has an ongoing programme to explore the health hazards caused by the additives, plasticizers and other chemicals used in the manufacture of the containers. Preliminary results indicate disturbances in the functioning of vital body tissues by administration of the plasticizers The plasticizers also seem to affect the normal capacity of the liver to deal with foreign chemicals.

The toxicity associated with aromatic compounds such as benzene in petroleum products is well known. Inhalation of petrol vapours by workers handling gasoline causes discomfort and illness apparently due to the excessive intake of aromatics. A simple tablet test has been developed for detection of phenol, the excessive excretion of which in urine is a good diagnostic test for the toxic symptoms caused by benzene. Experimental studies in animals have revealed alterations in the enzyme profile and lipid peroxidation pattern of liver and kidney. Since kerosene is used extensively as a domestic fuel all over the country attention is being paid currently to the design of experiments to study the toxic symptoms induced by exposure to kerosene.

Synthetic Dyes

Workers in dye industry manufacturing benzanthrone suffer from skin allergy and other ill-effects due to chronic exposure to the dye. Based on experimental work done in rabbits, a simple schedule of treatment with ascorbic acid and niacin has been tried in the sensitized workers. Currently investigations are in progress on the mechanism of the sensitization reaction in order to devise desensitization procedures.

Work on synthetic dyes has led to interest in the toxic effect of a commonly used food colour, matanil yellow, which has been shown in high doses to cause damage to the male reproductive organs. Surveys have been conducted on adulteration of common foodstuffs by such dyes and other harmful agents

The health survey of workers in an ordnance factory at Kanpur has led to the development of a vaccine therapy to alleviate the suffering of the afflicted Limited surveys have also been conducted among petrol pump workers, tannery workers, paint shop workers, welders, etc In collaboration with the Department of Medicine, K G Medical College, Lucknow, an epidemiological survey of a few villages of Unnao District, U P was conducted to find out the nature of the epidemic of paralysis that broke out in 1975-76. Besides the consumption of Kesari Dal, a well known lathyrogenic agent, many of the afflicted families were found to depend upon water supplies which had a very high content of manganese. An interim report containing recommendations has been submitted to the Governor of Uttar Pradesh

Registry of Toxicology

A Registry of Toxicology has been established at the Centre which strives to act as a clearing house of information on industrial health hazards. The Registry subscribes to most of the important journals dealing with toxicology and environmental pollution. The Registry has been recognised as a Regional partner, in the Central network responsible for the compilation of international register of potentially toxic chemicals set up by the United Nations Environment Programme at Nairobi.

The Centre has been selected as a reference laboratory by WHO for problems connected with the health hazards of pesticides. The Centre has analysed, with the sophisticated facilities made available by a WHO grant, a number of blood samples from South America and Gujarat as a follow-up study of pesticide residues in DDT spraymen. Under a project sponsored by WHO, a number of scientists of this Centre have received advanced training in toxicology research in Western Europe and the U.S.A.

Perspectives

In view of the increasing rate at which many health problems are being noticed in industries, it is proposed to expand the activities of the epidemiology wing on the highest priority Besides building expertise in monitoring health hazards due to noise, air and water pollution, the wing has to develop capabilities to introduce the concept of systems analysis to set up models from which threshold limits of environmental pollutants can be computed Public sector undertakings such as the Indian Telephone Industries, the Fertilizer Corporation of India and the Indian Petroleum Corporation have shown interest in conducting health hazard surveys in the factories under their control The details of such joint studies are being finalised so that work could start in 1978. The Small scale Industries Corporations set up in many states have been approached for a survey of occupational health hazards among millions of workers engaged in small industries and in the rural sector

Chemicals

As an extension of the activities of the Centre, the CSIR has approved a proposal for the creation of a Centre for Safety Evaluation of Pesticides. The objectives of the Centre are to take up on a sponsored basis the safety evaluation of pesticides for purposes of their registration under the Insecticide Act, evolve techniques for monitoring the harmful effects of pesticide residues in our foodgrains and develop remedial measures

By carefully planned animal experiments, studies with lower organisms etc and by observations on workers exposed to them over a long period, it would be possible to predict safety limits of such pesticides. This would help in framing appropriate legislation to prevent environmental pollution by these toxic agents. □

Plant Life

B. R. JUNEJA

FROM A SMALL plot, in the erstwhile Government Horticultural Garden, Lucknow, placed at the disposal of the Botany Department of the Lucknow University in 1932, for the cultivation of medicinal plants, to the present 62-acre National Botanic Gardens, makes a fascinating story of the origin and development of the NBG, Lucknow, set off against a colourful historical background. Now a premier botanical institute in the country, NBG carries on research work in botany, horticulture and plant chemistry, besides maintaining and developing a full-fledged botanical garden.

The garden part of the NBG encompasses within its limits the ancient Sikander Bagh which was laid out around 1800 A.D as a royal garden by Nawab Saadat Ali Khan of Lucknow and later improved upon by Nawab Wajid Ali Shah the last king of Avadh, during the first half of the 19th century. Nawab Wajid Ali Shah also named the garden after his favourite queen, Sikander Mahal Begum. Sikander Bagh was also the scene of a fierce battle during the uprising of 1857, when about 2,000 patriotic Indian soldiers, who had barricaded themselves in the garden, were killed in a British attack Articles like cannon balls, broken swords and shields, muskets and rifles, etc , dug out of the garden over the years, still remind one of that historic event.

After the establishment of the British rule, land around Sikander Bagh was also attached to it, and the garden was renamed as the Government Horticultural Garden Several well known British horticulturists, namely, Dr. J. Cameron, Dr. E. Bonavia who wrote one of the early authoritative monographs on *Citrus*, Mr. M. Ridley and Capt. G L Hollings, were successively the Superintendents of this Garden which became a centre of horticultural activities, holding of flower shows, supply and exchange of plants setting up of flower nurseries, etc , in the Northern India. Several fruit orchards, a flower nursery, and lawns were added to the Garden which was also maintained as a public park

The Beginning

In 1932, Prof. Birbal Sahni and Dr. S.K. Mukherji of the Department of Botany, Lucknow University, acquired a small plot of land in the garden for the cultivation and study of medicinal plants. This also led to the realisation of the potentialities of the garden for its development into a botanical garden. Consequently, a proposal was made to the Government of U P. in 1946, for the reorganisation of this garden into a botanical garden to serve as a centre for botanical and horticultural research The proposal was accepted in 1948 and some funds and a small staff were sanctioned for the reorganisation The garden was rechristened as the National Botanic Gardens and Prof K N. Kaul, then Professor of Botany, Government Agricultural College, Kanpur, was appointed Honorary Director. Five Years later, impressed with its aims and objects and promise of becoming a leading centre of research in botany, the Council of Scientific and Industrial Research took over the Gardens on April 13, 1953. Since then, the NBG has been working and developing as one of the 34 national laboratories under the CSIR

The NBG now comprises a well laid out garden, a rich herbarium, a vluminous library, excellently equipped research laboratories, a modern auditorium and a 300 acre field research station at Banthra, a village near Lucknow. The 27-hectare garden has an arboretum, a rosarium, a conservatory, a cactus house, a palm house and a fern house, besides a huge collection of wilk and cultivated plants, indigenous as well as exotic, all totalling up to about 1500 taxa. A special mention may be made of varietal collections of certain ornamentals like Bougainvillaea, Canna, Chrysanthemum, Hibiscus, Ixora, lotus, *Nymphaea* and bulbous plants. The herbarium contains about 90,000 plant specimens, properly identified, classified and incorporated. The library has around 26,000 volumes on its shelves, and subscribes to 400 research periodicals and journals and houses a Patent Inspection Centre. The 300-acre Banthra Research Station serves as an extension-cum-experimental station where different types of economic plants, able to grow on saline-alkali soils, are cultivated, with a view to utilisation of *usar* soils.

The R & D effort of the National Botanic Gardens is geared to introduction, conservation, propagation, protection, genetic upgrading and utilisation of native and exotic plant wealth of India, with particular reference to non-agricultural plants of economic importance and ornamentals.

Aims and Objectives

The main aims and objectives of the NBG are:

1. Building-up of a National Germ Plasm Bank of the aforementioned plants and maintenance of special collections;
2. Botanical, horticultural and chemical researches aimed at utilisation of plants and plant products and development of production technologies for new plant sources of commercial importance;
3. Serving as a national centre for creating a consortium of Indian Botanic gardens for the development of Plant Genetic Resource Centres in different agro-climates of the country;
4. Providing necessary expertise and assistance for identification, supply and exchange of plants and propagules, garden layout and landscaping, and organisation of flower shows, exhibitions and training courses in garden technology and systematic botany, particularly, of cultivated plants;
5. Dissemination of information on the R and D activities of the institute through publication of scientific and popular literature for scientists and amateur and professional gardeners and planters.

Some of the notable R & D activities of the NBG are described below.

That floriculture is a multi-million dollar trade abroad is well known, but, what is not equally well known is the fact that it is so in our own

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country as well. According to an ICAR survey, flowers worth Rs. 9.26 crores were sold in 1962 in the five metropolitan towns – Delhi, Bombay, Bangalore, Calcutta and Madras – alone and on that basis, the floral trade at current price level may safely be estimated to run into about Rs. 30 crores per annum. Taking the country as a whole, this figure will be manifold. But, still more surprising is the fact that this large trade in flowers has no scientific base worth the name. In view therefore, of the ever increasing trade in flowers and also house plants in the country, of the lack of a proper scientific base for it and of its export potential, the NBG intensified its R & D effort in the field of floriculture a few years ago and initiated a multi-disciplinary programme of work, which includes develoment of (a) fifty New Cultivars of 11 wellknown ornamental plants, (b) F_1 Hybrid Marigolds, (c) Programmed or Precision Blooming of Chrysanthemum, (d), Sept.-Oct. Blooming Cultivars, (e) Introduction and Domestication of Wild Plants of Ornamental Value and (f) Dehydration of Fresh Flowers and Foliage.

Medicinal, Aromatic and Essential Oil Plants

Even though modern medicine is widespread in India, majority of the country's population still depends on crude drugs for the alleviation of their sufferings. India is probably the only country in the world where the two ancient Ayurvedic and Unani systems of medicine still survive and flourish, side by side with the allopathic and homoeopathic systems

Although many drugs of the indigenous systems of medicine enjoy a high repute, few of them are scientifically standardised. Correct botanical identification and standardisation of these drugs is, therefore, of great importance. Equally important is the standardisation of agro-techniques for commercial cultivation of these drug plants, most of which are collected wild or imported.

The NBG has been making pharmacognostic studies on indigenous drug plants for some years during which about 300 plants have been analysed for their alkaloids, flavonoids and steroidal sapogenin contents. Recognising the expertise available in this field at NBG, the Central Council for Research in Indian Medicine and Homoeopathy has been running for some years a Composite Drug Research Scheme at NBG.

Alongside, investigations have also been continuing on such well-known medicinal plants as *Dioscorea* spp., *Papaver somniferum* (opium poppy), *Solanum* spp., *Trigonella* spp and Atropa *belladonna*, for their genetic improvement and higher yield. Investigations are going on, on the indigenous perfumes and essential oils, such as, those of Jasmines, *Har-Singhar* (*Nyctanthes arbortristis*)

Industrial Seed Resources

The diverse and abundant floral wealth of India includes many species, the seeds of which are rich in gums, mucilages, non-edible oils, starch and proteins, but, have all along been going waste on account of their wild occurrence, lack of arrangements for their bulk collection and inadequate knowledge about their usefulness. The attempt in this area has, therefore, been to bring out new, rich sources of industrial plant materials with particular reference to seed mucilages and gums and protein and lipid rich seeds and to develop knowhow for their industrial utilisation.

The NBG undertook the introduction and acclimatisation of grapes to North India over 15 years ago and its pioneering work in this field has led to some very useful results. Muscat of Hamburg, Perlette and Beauty seedless are some of the varieties of grapes recommended for commercial cultivation in North India. Besides standardising methods for training, pruning and fertilisation of the vines, the NBG has been carrying on investigations on other agronomic and horticultural aspects of grape cultivation, such as, foliar nutrition, fruit bud differentiation, mineral deficiency,.

A method has been perfected for the large-scale clonal propagation of virus-free *Chrysanthemum* and *Citrus* spp with the help of tissue culture technique Basal ends of small shoot spices of chrysanthemum, cultured aseptically in a certain nutrient medium, give rise to numerous shoots each of which can be rooted and developed into a new plant Thus, thousands of true-to-type and virus-free chrysanthemum plants can be obtained from a few shoot apices within a period of 6 months. Likewise, proliferating vegetative callus tissues of *Citrus grandis* (shaddock), *C. sinensis* (sweet orange) and *C. aurantifolia* (lime) can be made to give successive crops of shoots which can b rooted and developed into thousan of virus-free and true-to-type in dividual plants, fit for transferren to soil.

Taxonomic and Morphological Studi

Side by side with the NBG's prog ramme of introduction, conserva tion and documentation of germ plasm, taxonomic and morphologi cal studies are also pursued activel on different groups of plants, wil as well as cultivated. Extensive stu dies have been made or algae, fungi lichens, ferns and certain orna mental taxa, resulting in the sett ing up and discovery of a numbe of new species. Palynological studie have been made on cultivated, hone and allergenic plants.

Three-Way Public Interaction

The National Botanic Gardens interacts with the outside world on three fronts : (i) teaching and R&D institution, (ii) plant industry, and (iii) public

(i) *Teaching and R & D Institution* The NBG supplies teaching and research materials to the educational institutions for botanical studies and exchanges plant material and information. It also conducts joint research programmes with universities and colleges and organises special lectures, demonstrations and exhibitions for the students Identification of plants and provision of information on their occurrence, distribution, economic utility, etc., are provided at request

The NBG is recognised by a large number of Indian universities as a centre of post-graduate research and advance studies, leading to the award of Ph.D degree, in various branches of Botany, Agriculture, Horticulture and Plant Chemistry

Sixtyone members of the scientific staff and research fellows have so far obtained their Ph D. degrees for research work done at NBG in various subjects.

(ii) *Plant Industry* : The NBG supplies nursery stock and planting material of non-agricultural economic plants to nurserymen and others at nominal price; dehydrated flowers and foliage are also provided Identification of indigenous drug plants and standardisation of the agricultural practices and pharmacognosy of indigenous drugs, extraction of essential oils and perfumes, economic utilisation of non-edible oils and fats, cultivation and utilisation of subsidiary foods and fruits, etc., are some other fields in

which the NBG interacts with the plant industry. Analysis and extraction of essential oil is also undertaken at request. The NBG also trains industrialists in the extraction of essential oils from aromatic and essential oil plants.

(iii) *Public* : In order to create and develop bioaesthetic sense and love for flowers among the public, to provide them with basic and minimum knowledge for growing flowers in their houses, to afford opportunity to the garden enthusiasts, nursery men and other garden lovers to exhibit their floral collections and to bring to the notice of all concerned the latest varieties of flowers of different types, the NBG organises every year 4 Flower Shows and conducts a few training courses in the art and science of cultivation of flowers and gardening.

The NBG also sells authentic and new nursery stock and flower seeds/seedlings to the public, throughout the year from its Sales Section. There are number of picnic spots in the garden which are open to public, free of charge. Scientific and technical advice on gardening and economic plants and technical assistance and guidance to horticultural societies and clubs are offered from all quarters for the mere asking.

Future Plans

As there is hardly any single agency in the country which caters to the needs of the scientist, the planner and the industrialist, the NBG will shortly set up an 'Information Centre For Tropical Economic Botany', which would provide scientific and technical information in the fields of documentation of germplasm, non-agricultural industrial seed resources of gums, proteins and lipids, indigenous herbal drugs, certain subsidiary foods and fruits, condiments and spices, floriculture and utilisation of saline-alkaline soils, with special reference to the tropical areas of the world.

To give fillip to its projects on Palynology, Industrial Seed Resources and Propagation of Medicinal and Ornamental Plants by tissue culture, the NBG has plans to organise Seed, Pollen and Tissue Bank, wherein seeds and pollen grains and tissues of plants of interests will be collected and preserved for use as and when required.

Like the Information Centre, the Seed, Pollen and Tissue Bank will be a national facility, at service of the scientific community at large.

At the instance of the National

'Birbal Sahani', a new snow-white variety of Chrysanthemum, developed by NBG fron Japanese variety.

Commission on Agriculture, the NBG has also taken up the assignment of preparing an "Atlas of Medicinal Plants" which will find extensive use in the indigenous systems of medicine, such as Ayurveda, Unani and Siddha The NBG will also help in setting up Herbal Gardens in the villages in which village schools and other rural institutions will also be involved

A project of great national importance and of special relevance to the rural and tribal development is that of Ethnobotany which the NBG has recently taken up. It ai at making a survey of all those w and cultivated plants which fi some use in the life of the tril people and other rural communiti in their medicine, food, social a religious customs and rites, housi and clothing, fibre, etc The proj will not only result in the collecti of valuable information on the t ditional uses of plants by the tri people, but also benefit the nat at large by bringing to light m new plants of potential economic or new uses of some known plants

Study of the Oceans

S. Z. QASIM

THE NATIONAL Institute of Oceanography, Goa, is the only laboratory in the country to carry out oceanographic researches in the high seas. With the declaration of 200 nautical miles by India as her economic zone, the responsibilities of the Institute have increased considerably. Economic zone in the sea would mean a zone over which we have full technological control. Our country will soon have full competence to explore and exploit all types of resources from the economic zone

The National Institute of Oceanography (NIO) came into being in 1966 The campus of the Institute is located in Dona Paula, about seven km away from Panaji. The Institute has three regional centres at Bombay, Cochin and Waltair. The main objectives of NIO are to develop adequate knowledge related to physical, chemical, biological, geological, geophysical and engineering aspects of the seas around India and to build up competence in using the sea for the benefit of our people These benefits are connected with the exploration and exploitation of living and non-living resources of the sea, coastal development, offshore engineering works and pollution control. NIO is also aiming at developing indigenous technology for the exploration and exploitation of marine resources and being the focal point of oceanographic data and information services pertaining to the Indian ocean region.

NIO has seven divisions, namely, physical oceanography; chemical oceanography; geological and geophysical oceanography, biological oceanography,; instrumentation; planning and data and ocean engineering. The institute has identified seven priority areas for R & D These are: food from the sea; minerals from the sea; energy from the sea; progressive development of indigenous technology; coastal zone management; protection of the marine environment and technology utilisation. It is also engaged in several international projects of a cooperative nature.

Building-up Expertise

Oceanography, encompassing a multi-disciplinary approach to the study of the ocean, is a comparatively new science for India. Our involvement and participation in several expeditions and cruises in the Indian Ocean have helped in building up expertise and in the collection of a large volume of data from the Indian Ocean. The Institute has published more than 700 research papers on the seas around India.

NIO has been able to plan, build, equip and run successfully since February 1976 RV GAVESHANI—the first oceanographic research vessel of India Redesigned and built out of a hopper barge at the Garden Reach Workshops Ltd., Calcutta, RV GAVESHANI has been equipped for carrying out multi-disciplinary oceanographic research work practically throughout the year The endurance of the ship is 25 days The ship is equipped with modern oceanographic and navigational equipment

Seafood Resources

Earlier surveys of fish resources in the sea conducted by the institute have brought to light some rich grounds off Gujarat and Konkan coasts which are now being exploited. Recent surveys made on board RV GAVESHANI have revealed the existence of very rich fishing grounds in deeper areas of the Bay of Bengal and the Lakshadweep Sea

The institute has developed several technquies of aquaculture from floating rafts and in brackish water swamps and estuaries with a view to generating extra seafood resources from hitherto utilised areas. Certain varieties of mussles and oysters cultured in our coastal waters have given a very high yield. It is now proposed to develop the technology of aquaculture using treated domestic sewage.

Surveys conducted by the institute have shown that the coastal waters off Ratnagiri have appreciable qualities of ilmenite. At present efforts are under way to make a quantitative assessment of the ilmenite deposits.

The institute has completed a detailed survey of the 160 km oil pipeline route from Bombay High to Bombay for the ONGC using RV GAVESHANI. This survey has contributed greatly in breaking the monopoly of foreign companies which were carrying out such surveys at a formidable cost earlier. This survey has saved a very sizeable amount of foreign exchange. It has also given a new orientation to the utilisation of indigenous marine technology available within the country. The long term benefits of this work to the country are considerable as the crude from Bombay High will continuously be made available through the submarine pipeline to the shore refineries

The institute has also located a new site for jacking up the drilling vessel SAGAR SAMRAT for test drilling on the Angria Bank off Ratnagiri.

Pollution Control

The institute has completed many projects sponsored by the industries and public sector undertaking to control pollution caused by the indiscriminate discharge of waste into the sea The beneficiaries of these projects are the coastal areas of Gujarat, Maharashtra, Goa, Karnataka and Kerala A sizeable project to control the pollution off Bombay, sponsored by the Bombay Municipal Corporation, is nearing completion. The marine surveys carried out so far by the institute on the control of pollution have helped several industries to save valuable foreign exchange because such surveys were being carried out earlier by foreign companies only Apart from the sponsored projects, surveys of different marine pollutants, for example, petroleum hydrocarbons, chlorinated pesticides and heavy metals are being regularly carried out using RV GAVESHANI as a regular watch of the "health of our seas".

Coastal Development

The institute has completed nearly two dozen projects which have contributed a great deal to the coastal development programme. The beneficiaries of these projects are the Government of Goa, Daman & Diu,

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the Government of India, Mormugao Port Trust, Cochin Port Trust, the Government of Kerala, the Indian Navy, the Indian Resort Hotels Ltd., Bombay, etc. Our findings have helped in the expansion of the Cannanore fishing harbour, the Cochin and Mormugao harbour, in assessing the feasibility of an atomic power plant at Loliem (Goa), off shore oil terminals off Narara Bet (Kutch) and of Cochin, in effective navigation in the Mandovi and Zuari estuaries, in development of a 5 star hotel (Fort Aguada Beach Resort of the Taj Group of Hotels) at Singuerim (Goa), in demarcating dangerous zones along the beaches for swimming and in the construction of boat pens and jetties. These examples indicate the range of expertise and the technical knowhow available at the institute. The revenue earned by the institute from all these activities during 1976 was about Rs. 35 lakh. It has already crossed Rs. 36 lakh during the first five months of 1977.

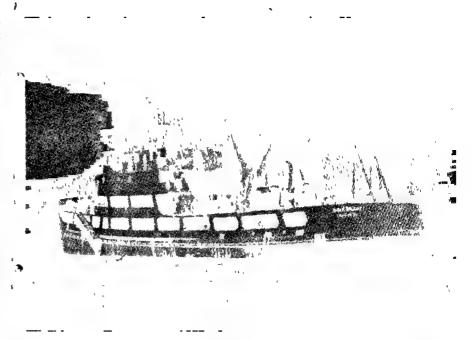
Erosion problems of several coastal areas of Kerala, particularly near the Thumba rocket launching base and at Goa have been studied fairly intensively by the institute and some remedial measures have been suggested

Marine Instrumentation

At present most of the instruments used in oceanographic research are imported Efforts are being made to develop self-sufficiency in this field as early as possible The institute has already developed several electronic instruments These are. tide and wave recorder and counter depth recorder, electronic sedimentation balance, inductive salinometer, electromagnetic current meter, electronic bathythermograph and telemetring system for oceanographic data acquisition.

The institute has developed the Indian National Oceanographic Data and Information Centre which is functioning as a national facility for the acquisition, storage and dissemination of oceanographic data pertaining to the Indian Ocean region

NIO has been selected by the United Nations Environment Programme (UNEP) as a regional centre for the project "Marine Environmental Monitoring and Marine Living Resources Assessment for the Indian Ocean Region". The first phase of the project has been completed.

NIO is also implementing the Indian national programme for marine pollution (petroleum) monitoring pilot project (MNP-MOPP) under the framework of the Integrated Global Ocean Station System (IGOSS) of Intergovernmental Oceanographic Commission (CIOC/UNESCO)

Under these two projects, several scientists have been trained abroad on the use of advanced techniques

Looking Ahead

Detailed surveys will be conducted to have a better knowledge and understanding of the food resource in the seas around India (upto 370 km) Efforts will be made to link up the results with the programmes of other national agencies Experimental work on mariculture and sea farming will be expanded with a view to developing cheaper technology for successful sea farming including the use of treated m domestic sewage for aquaculture This technology will be transferred to the actual users

Detailed surveys will be conducted in promising areas to quantify the mineral resources of the continental shelf

Intensive efforts will be made to develop plans for harnessing tidal and wave energy

The institute will make specia[l] efforts to build competence for hand[l]ing the various types of marin[e] surveys in accordance with the need[s] of the country Special emphasi[s] will be given to off shore structures ocean engineering and pollution control so that the indigenous tech[n]ology already available can b[e] utilised to the maximum.

It would be necessary to have [a] second research vessel A strong work[]shop and a large service group wit[h] all possible shore facilities will hav[e] to be developed to cater to the need[s] of the ship-board equipment. Th[e] regional centres will have to b[e] sufficiently equipped and strengthen[]ed to undertake problems of regio[]nal interests

Programmes will be developed t[o] explore and exploit large quantitie[s] of polymetallic nodules found o[n] the floor of the Indian Ocean.

By 1982 it would be possibl[e] with the second research vessel, fo[r] our scientists, to sail as far south a[s] the Antarctic Ocean and to conduc[t] successful scientific expedition[s] The southern extremity of the India[n] Ocean merges with the Antarcti[c] Ocean □

The research vessel, GAVESHANI built at the Garden Reach Workshops, Calcutta is the first of its kind equipped to carry out multi-disciplinary oceanographic research.

THE ENVIRONMENT—5

Recovering Hidden Sea Treasures

D. J. MEHTA

THE CENTRAL Salt and Marine Chemicals Research Institute, Bhavnagar which has just completed its 23rd Anniversary has, for the past few years, devoted itself not only to the pursuit of industrial research in the field of marine chemistry and other technologies relevant to the charter of the Institute, but a significant reorientation has been given in the selection and implementation of R & D problems of national importance with a view to creating self-reliance in technologies so vitally required for achieving the socio-economic objectives envisaged in the various national development plans.

The research programme of this Institute generally revolves round the sea – a storehouse of chemicals which has fascinated man since ages. In order to unearth and harness these hidden treasures, the Institute has carried out relentlessly investigations for developing various processes for the economic recovery of marine chemicals of industrial importance namely, magnesium compounds, potassium fertilisers, bromine, as import substitution products, in order to minimise the country's already heavy import bill. The contribution made by this laboratory has been of direct relevance to industrial development of the country particularly in (i) developing know how for processes or products, (ii) creating scientific base for new industries by providing with feasibility studies and (iii) providing design engineering and consultation services. The Institute also provides facilities for training of technical personnel to assist in the planning and execution of industrial projects of relevance to the Institute. As regards the capabilities of the Institute, it commands expertise in the field of phase equilibria of salt solutions, flotation, ion-exchange and desalination techniques. Recently work on the utilisation of solar energy for developing various useful devices has also been undertaken

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Shri Mehta is Director, Central Salt & Marine Chemicals Research Institute, Bhavnagar.

Objectives of the Institute

1. Research and development work on salt marine chemicals and inorganic chemicals channelised specially towards improvement in quality of salt for industrial use and for export, preparation of different varieties of salt, mechanisation of operations in salt works, to offer consultancy work for establishment of new salt works, recovery of potassium fertilisers, manufacture of refractory grade magnesia and important magnesium compounds, extraction of bromine from sea water and bittern, preparation of inorganic silicates of importance, studies on corrosion etc
2. Research & development work on desalination techniques (solar, flash and vapour compression distillations), reverse osmosis process using different types of osmotic membranes, electrodialysis technique using ion-exchange membranes, correlation studies on performance of membranes with physico-chemical and transport parameters, applications of membrane processes to other industrial uses
3. Research and development on synthesis of various types of organic and inorganic ion-exchange resins and materials for general and specific requirements, studies on continuous counter current ion-exchange operation for water treatment and pollution control, applications of ion-exchange resins for recovery of chemicals from waste or for preparation of new chemicals.
4. Research and development work on evaluation of sea water tolerance of plants and crops of agro-industrial value, to develop system of "Saline hyddoponics" on coastal sanc belts.
5. R & D work on culture ar propagation of economic s weeds, utilisation of seawee as food, feed and manur extraction of seaweed chem cals such as agar agar, sodiu alginate and protein and oth valuable chemicals, utilis tion of seaweed for growi industrial micro-organisms ar for preparation of bio-medic substances, seaweed surv of coastal regions.
6. R. & D. work on solar devic like solar cells, solar stil solar water heaters, solar pum solar ice machine, driers etc

Extensive Research

Common salt is manufactured India exclusively, by solar evapor tion of sea-water, sub-soil and la brines. Last few years of extensi research has resulted in phenomer growth of salt industry with con derable improvement in quali and yield of salt. CSMCRI h a share in this achievement. Althou the country is fully self-sufficie with regard to its requirement salt, the production being 6 million tonnes, the quality of sa for industries and export nee further improvement. The Institu has successfully demonstrated i scientific competence in the instal tion of solar salt works which giv better quality and yield of salt has introduced new ideas on pi crystalliser and series feeding syste to produce better quality salt i quired by the industries, and fo increasing the yield of salt witho much alteration in the layout

The Institute has organised annu training courses specially for tl technical personnel employed salt industry. About 150 techn cians representing different sa works from all over India have bee benefited by the training. Based c scientific concepts the Institute h prepared complete layout and desig of six modern solar salt works, an provided technical assistance to tw firms one each in West Africa an Saudi Arabia.

On the socio-economic aspec the investigations made by the In titute in the field of nutrition deser special mention. The nutrition e perts noticed that the majority population in rural area suffere from deficiency in essential nutrie elements such as calcium, iron an proteins. Endemic goitre is prev lent very largely in certain nort

eastern parts of our country due to deficiency of iodine. The salt which is used in daily diet could be a convenient and useful vehicle for supplying these essential minerals and nutrients to human beings and animals. The Institute has developed techniques to fortify common salt with these minerals. Conventionally iodised salt is manufactured by dry or wet mixing of potassium iodate with salt. Institute has developed a simple process to iodise salt by submersion in brine containing calcium iodate, which gives a uniform distribution and greater stability.

Marine Chemicals

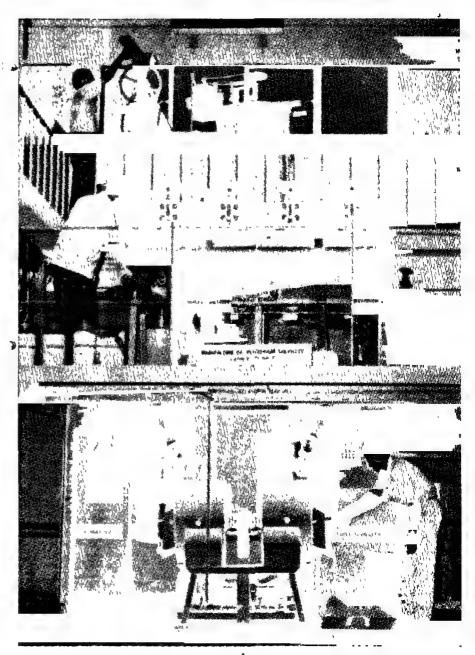
In the field of marine chemicals, a significant achievement is the development of import substitution products utilising the end liquor known as bittern, let over after recovery of salt It cantains valuable chemicals such as salts of potassium, magnesium, bromine, some of them being imported even at present In India the only source of potassium fertilisers and potassium chemicals at present is sea and inland bitterns. The potential capacity for production of potassium fertilisers from the entire sea and inland bitterns available from the major salt works is about 25,000 tonnes of K_2O against the present requirements of 6 5 lakh tonnes. The Institute has successfully developed indigenous technology for the recovery of potassium chloride and potassium schoenite as fertilisers, potassium schoenite has been introduced for the first time in India. It has been acceptable as a good substitute for imported potassium sulphate required for certain crops and fruit trees It is now included in Government of India's Fertiliser Control Order. Commercial production of potassium schoenite has already been started. Negotiations are under way for setting up more such plants in the country.

For the manufacture of kraft paper, glass and detergents, some 2,00,000 tonnes of sodium sulphate is required. The Institute has worked out a process for the economic recovery of sodium sulphate from sel's mixts, a byproduct of salt manufacture.

Another industrially important chemical, bromine is imported. Tata Chemicals are still the exclusive manufacturer of bromine. With the growth of bromine consuming industries namely, dye and intermediates, photography, fumigants, perfumery and textile, the demand has substantially increased. The present demand is 750 tonnes per annum while by 1985 it will be 1000 tonnes. By setting up a pilot plant of bromine, the Institute has acquired sufficient expertise to set up higher capacity plants even on turn-key basis. The knowhow has been successfully commercialised, and the country is likely to save considerable foreign exchange when full production starts.

One of the very recent achievements of the Institute is the long sought after for steel industry. Refractory magnesia, largely required for lining of the steel producing furnaces and equipments, is at present being manufactured from mineral magnesite. However, the demand for this material is very large and about Rs. 10 million have to be spent to import the basic refractories for steel manufacture every year. The Institute has successfully prepared refractory grade magnesia directly from sea-water and upgraded lime. Pilot plant studies have indicated that it is possible to produce magnesia containing 2 to 2.5% CaO which is useful for steel furnace lining. It is evident, the commercialisation of the process will help the country towards having considerable foreign exchange.

Other important work in the chemical field carried out by the Institute may be mentioned the development

The Potassium Schoenite Plant of the Institute has started commercial production of potassium schoenite which is a good substitute for imported potassium sulphate.

of knowhow for the preparation of various silicates. These have wide industrial applications in rubber, paper and plastic manufacture, namely synthetic calcium silicate and its insulation blocks, precipitated variety of silica, pharmaceutical grade magnesium trisilicate, 4A type Molecular Sieve, useful variety of industrial applications.

Crude borax from Pugga Valley contains rubidium and cesium The recovery of these rare alkali metals is carried out through alum process. Similarly, the recovery of lithium from crude borax and Indian Lepidolite is worked out. Lithium salts are very useful for imparting glaze and gloss to-costly ceramic materials and sanitary wares The country imports about 400 tonnes of lithium sales.

Seaweed Research

The Institute has made out systematic studies on a variety of seaweeds, extensively growing on the Indian coastline Until recently there was hardly any awareness of the economic importance of seaweed resources. Systematic researches on seaweed utilisation were undertaken and processes developed for the manufacture of seaweed products namely, agar and alginates, and biological and chemical studies on seaweed were also carried out. Various seaweed chemicals such as agar agar, agarose and alginates find increasing use in bacteriology, various food preparations and many industrial applications. The Institute has helped to set up a number of seaweed chemical industries to make the country self-reliant and simultaneously save precious foreign exchange.

Another important contribution made in this field is the starting of a scheme for the artificial cultivation of economic seaweeds like Gracilaria and Gelidiella since the existing seaweed resources are found to be inadequate In order to support many of the new industries on agar, alternatives had to be found for supplementing the seaweed resources. Industries have also joined with the Institute in this collaborative work on cultivation of seaweeds.

Potable water is our basic and indispensable need. Its quality and supply in adequate quantity has taxed the ingenuity of every generation. With the advent of rapid industrialisation and growing population the demand for water of municipal, industrial and agricultural purpose is ever increasing. Further, the droughts frequently recur especially in Saurashtra, Kutch, North Gujarat, Rajasthan and some areas of South India. In an effort to ease the problem of water, both for domestic and industrial use, the Institute has developed indigeneous technology for desalination of brackish and saline water resources, such as the membrane and distillation techniques

(i) *Solar Distillation* : Extensive data have been collected on solar distillation of sea-water on a pilot plant of 1000 litres of fresh water per day capacity Based on this data, designs for solar stills of various capacities have been supplied to numerous organisations namely. educational institutions, research laboratories, petrol pumps, lighthouses etc, for producing distilled water. Collection of engineering data on three stage flash-distillation unit has been completed. A design for 30 tonnes per day single stage vacuum distillation unit has been supplied to a Naval Dockyard for seagoing vessel

(ii) *Reverse Osmosis* . The institute has succeeded in the preparation of flat and tubular semi permeable membranes and for fabrication of tubular and spiral reverse osmosis plants The success of reverse osmosis desalination units have already been demonstrated by establishing and operating such units to the Border Security Force in Kutch, and drought affected village Rajasthali in Saurashtra for treating highly saline brackish water to obtain potable water, to the entire satisfaction of the people of that area The knowhow has been released to six well-known engineering firms

The achievement for the development of indigenous know how for reverse osmosis does not end with desalination of water only The reverse osmosis technique has potential uses in the various fields such as recovery of costly chemicals from industrial effluents, concentration of fruit juice, separation of chemicals etc.

(iii) *Electrodialysis* : Another membrane technique of desalination is the electrodialysis, involving the use of ion-exchange membranes Few years of continuous efforts at the Institute for developing an indigenous technology for preparation of membranes with entirely indigenous raw materials has born fruits. Many improvements in them embranes have been made now and conditions for synthesizing the interploymer membranes have been optimised.. Like the reverse osmosis technique, th method has also proved to be a economical success, the plants hav ing been perated at various plac The knowhow has been commer cialised.

The developing desalination tech nologies entirely indigenous f obtaining potable water, is a majo breakthrough which has grea socio-economic significance in con text of continued drought and wat scarcity problems of the country

Ion Exchange

Technology for softening the har water containing about 3000 ppm TDS using continuous counter cu rent ion-exchange technique ha been developed and knowhow released to three parties who hav already commissioned the plant Efforts are in progress to deminera lise the brackish waters using simila technique.

Ion-exchange as a means of solvin many chemical problems has caugh the attention of scientists in recen years. The Institute has acquired good deal of expertise in utilisin the ion-exchange technique in variou fields other than water softening specially in the recovery of chemi cals The technique has been success fully applied for the preparation o alkalimetal bromides, potassium silicate, potassium nitrate, I L grade boric acid and silica gel a sponsored schemes. Another signi ficant achievement deserving men tion is the development of a proces using ion-exchange technique fo the recovery of potassium chlorid from the spent wash liquor of sugar industry Already a firm in cooperative sector in Maharashtra has decided to commercially exploit the knowhow Looking to the enormous amount of such liquors available from all over India, the technology developed has great significance

Another significant development is the continuous counter current ion-exchange unit for treatment of water This technique has many advantages over the conventional fixed bed deionisation unit, in the sense that, in this process (1) the quantity of resin required is almost one-third, (2) quantity of regenerant is less and idle period of rinsing the resin is completely eliminated and (3) equipment cost is cut down considerably. The technique is very suitable for effluent treatment.

Success has been achieved in developing inorganic ion-exchangers like ammonium phosphomolybdate, ammonium phosphotungstate, poly-

antimonic acid, suitable for isotope separation.

India having a long coastline of 5000 Km and about 8.5 million hectares of coastal sand dunes affords enormous possibilities of harnessing sea-water for irrigation. The laboratory and field experiments carried out in the Institute have shown feasibility of growing highly tolerant varieties of pearl millet (bajra), Sorgham (Jowar), wheat, safflower, cotton sugar-beet, chicory etc. using sea-water along with necessary nutrients.

The experiments have indicated that the gradual acclimatisation is necessary to obtain good results. It has been also observed that quality of grains produced by sea-water is comparable to those produced by fresh water. Many more crop varieties are being tested in this new method of cultivating plants with saline water over sand dunes.

Solar Energy : Utilisation

In the present energy crisis, solar energy, the nature's gift, is bound to play very useful and important role. It is a plentiful and pollution free resource of energy. Although its diffuse nature and availability during day time alone constitute drawbacks it has however its own merits and place in the present energy spectrum.

Research and development is being done on following schemes which are in progress with a view to economic utilisation of solar energy for various uses:

1. Low temperature application e g solar ice machine.
2. Solar hot air engine for pumping the water,
3. Solar cells for rural electrification.
4. Solar driers for drying the moist or wet substances.

The Institute has done extensive work on laboratory, pilot plant and field scale and gained good expertise in designing and construction of solar stills to obtain fresh water from saline water utilising Sun's heat energy. This method has been found techno-economically feasible to provide drinking water to scarcely populated isolated regions where available water source is saline The technique has also been found useful for getting good quality distilled water for laboratories and batteries

The Institute has supplied design drawing to many interested parties all over India to install solar stills. Solar stills have also been established at Navinar Lighthouse for meeting the drinking water requirements of staff. Recently the Institute has been constructing solar still plants at the village Awania in Bhavnagar district and at Narayan Sarovar in Kutch to meet the drinking water needs under the rural upliftment programme.

R & D work is in progress to study the economic utilisation of solar energy to fabricate solar ice machine, solar engine for pumping water, solar cells for rural electrification, solar driers for drying the moist substances and solar oven. □

ENGINEERING IN HARMONY

(Contd from page.........6)

red, atomic absorption spectrophotometer and gas chromatograph, are also available and these facilities are provided to various organisations in the field.

Technology

The know-how on products, processes and equipment is being offered for commercial exploitation through CSIR and NRDC. Training courses are organised to impart knowledge of the latest developments and skills required for efficient performance of personnel in the profession. Extension activities are undertaken where the scienitsts actually move to the area of users to demonstrate utility, viability and advantages of the new techniques. In consultancy services, NEERI associates with the clientele right from the development of knowhow to a stage where the clientele can put it to use independently.

A Long Way to Go

NEERI, by itself, can undertake only typical problems. For resolving several environmental engineering problems as they come up, a still better participation of the beneficiaries in the Institute's R & D programmes is necessary.

As a consequence of the legislation on water pollution, several States have recently set up water pollution control boards like the one at the Centre. The Air Pollution Control Bill is also on the anvil. The day is not far off when an attempt to foul the environment, inadvertently or otherwise, will be punished as an offence. What should be aimed at is the minimal resort to legislation This is possible only with a devout determination on the part of the industries, corporations and such other civic agencies to conceive of environmental pollution control measures at the inception and implement them in right earnest as an integral part of their various schemes. □

BUILDING FOR THE MILLIONS—1

New Dimensions in Plywood

JOSEPH GEORGE

ORGANISED LARGESCALE wood-based industry has been developed in the country only during the last three decades. The second world war gave an impetus to the industry, particularly in the field of plywood. With growth and expansion came the realisation that if the industry is to become self-reliant and is to diversify into more sophisticated and specialised fields and attain international competitiveness for export, active efforts in pure and applied research in the fields of wood science and technology relating to the manufacture of panel products would have to be begun sooner or later.

A timely suggestion came from the Indian Tariff Board that the plywood industry should establish a research laboratory of its own. A Plywood Industry Voluntary Cess Committee was set up by the Government to collect funds for the purpose. In 1961, when adequate funds were available, the Indian Plywood Manufacturers' Research Association was formed which, with the assistance of the then Ministry of Industry and Supply and the generous support of CSIR, established the Indian Plywood Industries Research Institute in 1963 under the cooperative research scheme. Two field stations were also established, one in Calcutta in 1963 and the other in Assam in 1970.

The main problem facing the plywood industry is shortage of timber raw material. The present production of about 50 million sq. metres of plywood per year is far too little for a country of the size of India. Systematic studies are, therefore, carried out at the Institute on the optimum utilisation of veneer logs. Peeling, drying and gluing characteristics of timbers are studied and recommendations made to plywood factories on methods to maximise output. Special investigations on less used species of timbers have been initiated with a view to using them in panel industries.

Mycological and entomological investigations at the Institute are aimed at the protection of wood, wood-based materials and other lignocellulosic materials. It is estimated that up to 30 per cent of the timber harvested in forests is lost during transit and storage due to physical and biological deterioration. Prophylactic treatments developed at the Institute are being used by the plywood industry to protect veneer logs.

Development of adhesives

The present level of sophistication in the woodbased panel industry throughout the world is mainly due to the synthetic resin adhesives. These have always been costly in India and became even more so after the oil crisis The development of suitable adhesives for plywood, particle board and allied materials has been a major task before the scientists of the Institute. The dependence on petroleum-based synthetic resin adhesives has been reduced considerably by the use of blends of synthetic resins and proteinous materials such as defatted groundnut meal, sal seed meal and gluten. Tannin-based adhesi[illegible] were specially formulated for [illegible] plywood industry when urea-f[illegible] maldehyde and phenol-form[illegible] dehyde resin adhesives were [illegible] available in adequate quantiti[illegible] Adhesives formulations develop[illegible] in the Institute are widely employ[illegible] in the plywood industry. Work [illegible] adhesives is continuing in order [illegible] reduce costs further.

Development of particle boa[illegible] suitable for tropical climates is [illegible] progress. The most recent and imp[illegible] tant achievement in this field is [illegible] development of rice husk boa[illegible] suitable for such exterior uses [illegible] roof and wall cladding and also [illegible] secondary structural mater[illegible] Special adhesives were develop[illegible] at the Institute to bond rice husk i[illegible] strong, water resistant panels. T[illegible] boards are resistant to decay, insec[illegible] termites and fire.

Tea Chests

The annual production of tea [illegible] India is about 500 million kg, alm[illegible] the whole of which is packed in p[illegible] wood tea-chests. Plywood for t[illegible] chests is manufactured mostly [illegible] small units. The Institute p[illegible] special attention to their requi[illegible] ments of adhesives, quality cont[illegible] and standardisation.

The Institute designs, fabrica[illegible] and supplies to the industry vari[illegible] instruments for quality and proo[illegible] control. The use of veneer la[illegible] adjusting instruments supplied [illegible] the Institute has greatly improv[illegible] the quality of plywood. Instrume[illegible] for temperature and moisture co[illegible] tent measurement have also be[illegible] developed.

An important activity of the In[illegible] titute is the investigation of the ph[illegible] sical- mechanical properties

A house constructed entirely with Plywood.

*Joseph George is Director, Indian Plywood Industries Research Institute, Bangalore.

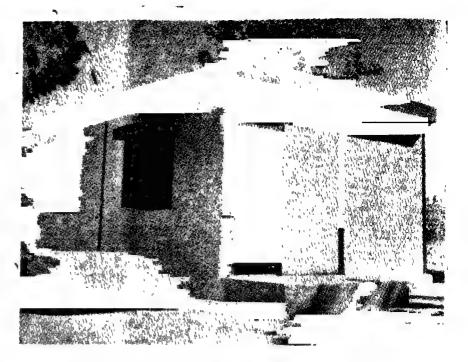
plywood, particle board, hardboard and other wood based panels. Test procedures are rationalised and new methods are developed. Design data for plywood for different end uses are being made available to engineers and builders Non-destructive test methods are developed for strength and quality control in timber and timber products

Structural Grade

A notable contribution made by the Institute is the introduction of a new grade of plywood, namely, structural plywood for construction purposes. Plywood as a structural material is almost unknown in this country The Institute gives great importance to developing various engineering uses for plywood and other wood-based panels. As a result, several glued wood-plywood laminated structural components such as stressed skin panels for roofing, wall systems, arch panels, web beams and portal frames have been designed and developed at the Institute. By making use of these components, several experimental structures have been constructed and some of them have undergone service tests for over five years.

Structural plywood treated with preservatives to protect it from decay, termites and other insects is used for construction work Waterproof and weatherproof structural adhesives developed at the Institute are used for the assembly of wood-plywood building components.

Investigations at the Institute have shown that plywood, hardboard and components made out of them are ideally suited for low-cost housing, particularly when used with a judicious combination of traditional building materials Comfortable houses costing Rs 150-200 per square metre of plinth area can be constructed using the techniques developed at the Institute. A few demonstration houses using plywood and hardboard have been built

Preservative-treated exterior grade structural plywood is the ideal material for the fabrication of mini-structures like milk booth, pavement stalls, kiosks and bus shelters These structures, which are of a knock-down type, are portable and can add interest to the street-scape in towns and cities as they can be given a variety of interesting shapes. Several small structures have been designed and fabricated at the Institute from four mm thick plywood and wood.

This house has a roof made by Rice Husk Board

Low Cost Housing

It is estimated that the housing shortage in this country runs into several million, mostly in the rural areas. The chief obstacle to the construction of rural and low-cost houses by the million is the absence of a suitable roofing material. The use of high energy materials like tiles, bricks, cement and steel is virtually ruled out in planning for houses by the million. Much thought has, therefore, been given at the Institute to the problem of finding suitable roofing material so that a significant impact could be made on the housing problem

Work of an exploratory nature has indicated that rice husk board developed at the Institute can be used as roof cladding and also as secondary structural material for building large number of houses in the years to come The cost of such houses can be in the range of Rs. 100 to Rs 180 per square metre (Rs 10 to Rs 18 per sq ft.). An experimental house of 25 square metre plinth area constructed at the Institute premises is presently undergoing service tests. The inherent resistance of rice husk boards to termites and fire and the fact that 17 million tonnes of rice husk is produced annually in the country make rice husk boards a most promising roofing panel for mass housing. The potentialities of rice husk boards in housing and in construction in general are very vast.

Continuing the search for still lower-cost roofing materials m[...] from resources which are themselv[...] available in large quantities, t[...] Institute has recently develop[...] roof made of preservative-treat[...] wood veneers It is visualised th[...] by making use of non-utilis[...] wood species from forests and woo[...] residues available from the woo[...] industries, a million houses, eac[...] of about 25 square metre plinth are[...] can be constructed every year b[...] adopting the technique developed [...] the Institute. Non-utilised speci[...] of timber can also be used for th[...] farming of these houses Preserva[...] tive treatment by the dip diffusio[...] method will make it possible t[...] treat and use most species of ade[...] quate strength A factory produci[...] the treated veneer and wood situate[...] centrally can supply the roof fram[...] and veneers as a package over a[...] area of 800 km radius at a littl[...] extra cost. Roof panels can als[...] be prefabricated and supplied [...] wood veneer roof and framing manu[...] facturing factory will require manl[...] saw milling equipment and a venee[...] lathe.

A rural type house having treat[...] ed veneer as roofing is estimated t[...] cost about Rs. 80 to Rs 100 pe[...] square metre (Rs. 8 to Rs. 10 pe[...] sq. ft.). The veneer roof shingles ar[...] expected to give a service life of ove[...] 20 years, at the end of which the[...] can be replaced.

Further, the Institute has collec[...] ed information on the protection o[...] thatch and bamboo traditionall[...]

used in rural housing in the country. Some experimental investigations have also been carried out on protection of thatch, bamboo and wood poles against decay, insects, termites and weather. Adequate expertise is now available at the Institute for guiding interested parties for enhancing the service life of thatch roofs which, otherwise, usually last only one or two years.

Providing functionally suitable door and window frames and shutters at a competitive cost is another problem in lowcost housing, low-cost door and window frames of laminated constructions have been developed at the Institute from small dimension wood, plywood and hardboard. These frames and shutters are strong and durable and functionally adequate. The techniques of making such frames and shutters eliminate the need for time-consuming traditional carpentry joints.

Grain Storage Bins

The design of economical scientific storage systems for foodgrains is a project of national importance. The Institute has designed grain storage bins of capacities ranging from one quintal to 60 tonnes from plywood to meet a variety of end use requirements such as small, medium and relatively large capacities, indoor and outdoor types, cylindrical and rectangular, prefabricated, knockdown and portable varieties and for *in situ* constructions. Several of these bins fabricated at the Institute have been evaluated by organisations through out the country.

Functionally and structurally plywood bins are ideally suited for the domestic and rural sectors. Costwise, plywood bins offer the cheapest means of scientific storage of grain. The preservative-treated plywood, used for bins, is water proof, weather proof, decay resistant, insect proof, termite proof and resistant to rodents.

Small capacity plywood grain storage bins may also be designed as multipurpose bins which can serve as an item of furniture like a bench, diwan and bed or storage space. The Institute is now in a position to design and fabricate plywood bins of capacities up to 500 tonnes.

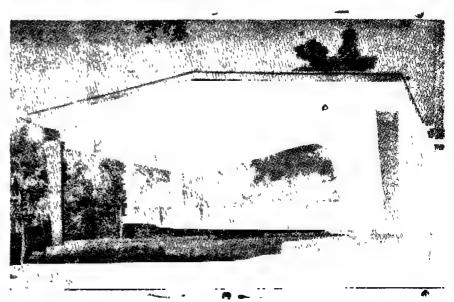
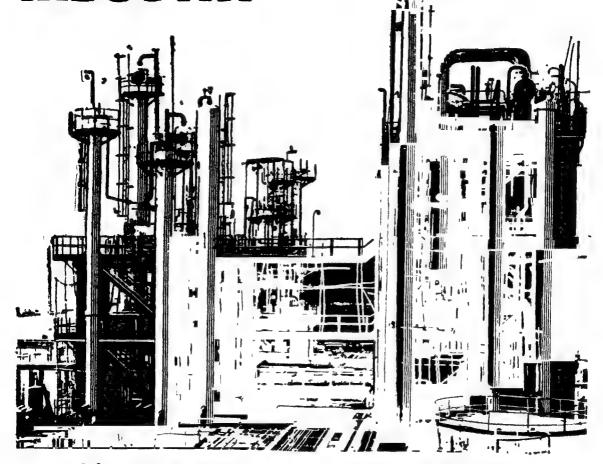
Storage tanks for chemicals and fertilisers have also been developed using exterior grade plywood. Their special advantage is resistance to corrosion.

A wide range of plywood knockdown furniture like tables, cots, sofas, wall components and wardrobes have been designed and fabricated at the Institute using 12 to 15 mm thick plywood. They are attractive, cheap and are made without fasteners and traditional carpentry joints. Such furniture can be dismantled, packed and transported easily. They are ideally suited for the rural environment. The village craftsman can fabricate such furniture using basic carpentry tools.

A well trained team of scientists and engineers of the Institute carry out extension work in plywood factories and help the industry successfully to implement the processes developed at the Institute.

It may be emphasised that because of the close contacts between the industry and the Institute there is no communication gap between the technical personnel of the industry and the scientists of the Institute. The programme of Research and Development work of the Institute is formulated in consultation with the industry.

A Pre-fabricated Milk-booth of wood and Plywood

This Pre-fabricated Plywood roof is supported by prefabricated portal frames of wood and plywood.

Structural Engineering

RAPID INDUSTRIALISATION of the country calls for a large volume of building activity and construction activities of all types account for a large expenditure. It is conceded by all cotncerned with the building industry hat a saving of atleast 10 percent of the expenditure can be affected if concerted steps are taken to modernise our design methods and construction techniques.

To make the country self-sufficient in modern structural engineering skills, the Council of Scientific and Industrial Research (CSIR) established Structural Engineering Research Centre (SERC)at Roorkee in 1965 As the National Laboratories can effectively reach the end users only through the medium of well-organised and well-equipped regional centres, a Regional Centre was set up at Madras in 1966 To day, the SERC functions from its two Campuses at Roorkee and Madras which have complementary functions and facilities

The broad scope and functions of the Centre are.

1 To act as an information bank of all the latest available knowledge and knowhow relating to the design and construction of buildings, bridges, and other structures such as transmission lines, television and microwave towers, chimneys cooling towers, machine foundations, electricity poles, pipes, sleepers and nuclear containment pressure vessels;
2 to undertake application-oriented research on all aspects of structural engineering in consonance with national priorities;
3 to accept research and development work from other organisations in the public and private sectors, especially in developing complicated structural designs involving the use of digital computation, tests on scale models and prototypes for undertaking which the run-of- the-mill design offices in the public and private sectors have no facilities. Its role will be to act as a consultant to consultants and others;
4. to undertake turn-key consultancy assignments in India and abroad, particularly those involving the design of industrial and residential colonies, bridges, and other transportation structures by forming ad-hoc consortia with other national laboratories under the CSIR and other private sector consultancy and construction organisations; and
5. to organise, from time to time short-term specialized courses in structural engineering with a pronounced practical bias for the benefit of practising engineers to expose them to new ideas and developments in design and construction.

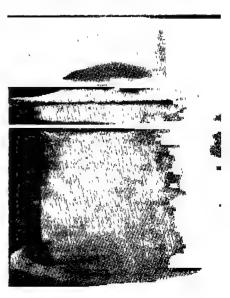
ACHIEVEMENTS

Reinforced Concrete

Some of the major research programmes at the Centre are aimed at modernising the design and construction of reinforced concrete structures in India by bringing them in line with the current practices in other countries of the world so that money and materials are saved. A case study showed that the use of ultimate strength design and the high yield strength deformed bars in place of mild steel as concrete reinforcement would result in substantial economy in reinforced concrete structures. Although these techniques had the sanction of the relevant Indian standard codes of practice, the design engineers were rather reluctant to make this change over for the simple reason that they did not have readymade design aids for use in the design offices. A multi pronged approach was therefore made to encourage the engineers to use the modern techniques. To expose design engineers to these new techniques a series of workshops were organized for them in collaboration with the National Buildings Organisation, New Delhi; an Ultimate Strength Design Handbook containing time saving, labour saving and ready-to-use tables and charts was brought out so that design engineers would not be reluctant to make the change over from elastic to ultimate design. This handbook has proved very popular and there i[s] a constant demand for it.

The Centre's work on researc[h] and development of an indigenou[s] high yield strength deformed ba[rs] known as Grip Bar for concret[e] reinforcement in place of mild stee[l] is one of the major achievement[s] and has brought good results. Apa[rt] from effecting on an average 30 pe[r] cent savings of steel for the nation the indigenously developed Gri[p] Bar is a superior substitute for [a] proprietary reinforcing bar pro[-]duced in India with foreign colla[-]boration. It was largely due to th[e] initiative and sustained effort[s] of SERC that the deformed bars—both hot rolled and cold worke[d] varieties—are now being manu[-]factured in the country. The deve[-]lopment of Grip-bar for concret[e] reinforcement by SERC also merite[d] the award of a Silver Shield for 196[?] by the Board of Awards on Impo[rt] Substitution.

Steel is the backbone of a growin[g] economy and savings in steel is essen[-]tial to widen economic activities One of the answers is the shell roo[f] construction. An important achieve[-]ment of the Centre in this field is th[e] development of a new form of shel[l] known as the funicular shell. Thes[e] shells, when used as roofs, can b[e] built even of country bricks withou[t] any steel Such brick shell roofs o[f] large sizes have been built to roo[f] the buildings of the National Insti[-]tute of Design at Ahmedabad an[d] the Regional Centre of SERC a[t] Madras. The funicular shells ca[n] also be used for roofs and floor[s] effectively with considerable savin[g] in steel. The heavy loading platform

This grain storage bin of 25 tonnes capacity is made exclusively of plywood.

built at the Madras Port and the Workshop floors for the National Institute of Design at Ahmedabad are examples of this application. The continuous research and development on the use of these shells have resulted in a new system of roofing and flooring known as the waffle Shells. This system of construction replaces the conventional reinforced concrete slab with savings in steel to the extent of 40 per cent.

The need for updating of Indian Codes of Practice for reinforced and Prestressed Concrete—which sanction the use of ultimate strength design procedures—is far more urgent today, as the specifications of these codes have direct relevance to the use of steel in the construction industry. However, the current provisions in the code on ultimate strength design do not adequately cover many of the important aspects of the several design criteria. It is, therefore, timely and appropriate that the codes are revised in the light of current research to make them more rational and to bring them in line with the latest thinking on the subject. The Centre has undertaken to revise the Indian Codes for Reinforced and Prestressed Concrete in the light of the International recommendations of CEB-FIP.

Based on the studies carried out at SERC, detailed recommendations have been made to the Indian Standards Institution for revising the Indian Standard Codes of Practice for Structural Concrete, along with a clause-by-clause commentary on the code recommendations explaining in detail the various clauses. With the adoption of these recommendations, the design methods will become far more rational, comprehensive, consistent and will result in more efficient and economical structures.

Gr. in Storage Structures

The available data on the design of silos are meagre and controversial. To fill the gaps that exist in the knowledge of the bin loads and to collect data for safe and economical design of silos for storing various foodgrains, an extensive experimental investigation was undertaken at the SERC.

A square silo model was designed and fabricated to ascertain the loads exerted on its wall during filling, fully filled and while emptying conditions. Tests, with paddy and wheat as filling were conducted. The results of these tests showed that the critical wall pressures occurred in silos during emptying operations which were more than those recommended in the present Indian Standard Code on silos. Based on the results of these studies suitable pressure schemes were recommended for the computation of silo wall pressures for the design of silos storing these materials

Computer programmes for optimum design of more commonly used cylindrical silos were also developed at the Centre.

The Centre was mainly responsible for drafting the first ever Indian Standard Code on the "Criteria for the design of reinforced concrete bins (silos) for bulk foodgrain storage'. The Centre also assisted the ISI in recasting this Code to cover the design criteria for reinforced concrete silos storing various powdery and granular materials in addition to the foodgrains The SERC also assisted the ISI in drafting another code for steel silos and bunkers.

Transmission Line Towers

Transmission line towers, television towers and microwave towers which serve as the nerve centre of our communication system are being built in large numbers all over the country today It is thus obvious that even slight economy by way of their design can result in colossal savings The conventional methods of analysis and design of these structures are incapable of handling such complex structures. But the optimum design of towers developed at the SERC provides an answer It is now established that by using the computer programmes developed at the SERC savings upto 10 per cent in the weight of steel can be realised. It is also estimated that if the optimum designs of towers perfected by the SERC are widely adopted, large savings can be affected The Centre acted as consultants to Triveni Structurals Ltd. for reviewing the designs for the TV towers at Bombay Transmission line towers for various State Electricity Boards and microwave towers for P&T Deptt of Government of India were also designed

Ferrocement Bins for Rural Areas

About 65 to 70 per cent of the total foodgrain production in the country is stored at the rural level in traditional and unscientific storage structure resulting in enormous losses. Realising this the centre undertook the development of small capacity ferrocement bins. Research work carried out at SERC has resulted in the development of ferrocement bins of ½t, 1t, 2t and capacities which are cast by a simp process calling for only village le skills. The process has been pate ed and released through the Nati nal Research Development Corp ration of India (NRDC), New Del Depending on the individual co sumer's requirement 1, 2, 3 tonne b may be assembled by erecting o two or three wall units one over t other and filling up the joints w cement mortar. These bins a strong, light, durable and are fi proof, damp proof and rodent pro and pose no recurring maintenan problems. Evaluation tests carri out on these bins at the Centi Food Technological Resear Institute (CFTRI), Mysore ha demonstrated their function su ability to store foodgrains.

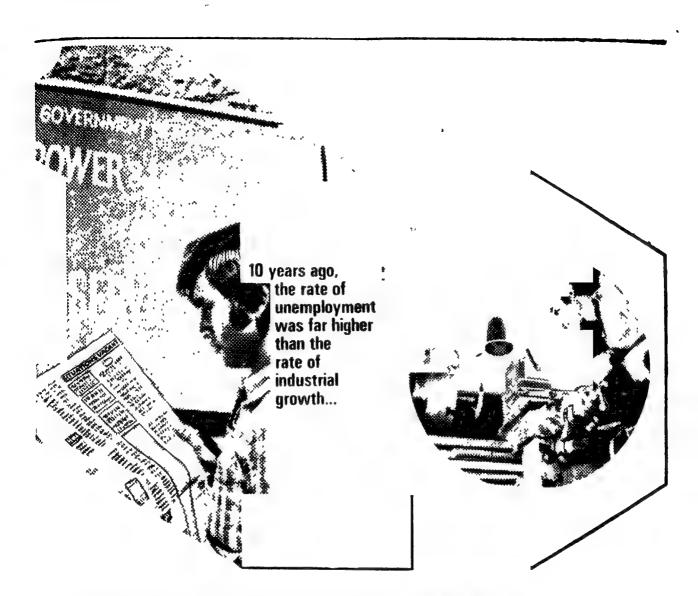
With steep rise in the oil pric during the last few years it h become necessary to tap alternati sources of energy, namely, the eno mous amount of biological wast especially cow dung, available the countryside. To achieve t objective it was necessary to devel economical designs for biogas plant especially for the gas holders. T research project for the develo ment of ferrocement gas holders f biogas plants has been sponsor by the Department of Science ar Technology, Government of Ind as a part of the All India Coord nated Project on Biogas. A typic design of a 3cu. m plant incorpora ing the above features showed th savings of more than 30 per ce could be achieved over the conve tional designs. Further, develo mental work is in progress.

Utility Computer Programmes

The SERC has developed utili computer programmes for the anal sis and design of 'repeat' structure Today structural engineers all ov the country use these results of r search in designing such complica ed structures as multi-storeyed bu dings, prestressed beams, shell roof folded plates, grids, and transmis tion line towers in an amazing short time. A problem oriente language has also been develope at the Centre to facilitate use of t digital computer by structural e gineers for the analysis of structure The SERC has also developed com puter programmes for such advan ed management techniques as Cri cal Path Method (CPM) and Pro ramme Evaluation and Revie Technique (PERT). The utili programmes of the Centre are in con stant demand by the profession □

10 years ago, the rate of unemployment was far higher than the rate of industrial growth...

TIMES HAVE CHANGED.

Today, petrochemicals supplied by NOCIL are helping to widen the industrial base, provide more jobs.

Petrochemicals from NOCIL provide the basic raw materials to many downstream units, the majority of which are formulators and processors in the small-scale sector. As a major supplier of raw materials, NOCIL is aiding industrial growth and thus generating more employment for our people.

In this and other vital areas like food, clothing, footwear, health and power—NOCIL is supplying raw materials, and providing technical services to develop new product applications and effect import substitution, particularly in the small and medium scale sectors. Thus giving them the means to grow and diversify, and to help fulfil the basic needs of the common man.

IN 10 YEARS OF OPERATION,
NOCIL HAS HELPED CHANGE THINGS FOR THE BETTER.

CHAITRA-NOCIL-42

Research at Roorkee

Prof. Dinesh Mohan
P. L. De

SYSTEMATIC RESEARCH in the field of building science started in India in 1947 with the establishment of a Building research Unit at Roorkee under the Council of Scientific and Industrial Research. It grew into a National Laboratory in 1951 when it was named as Central Buliding Research Institute. The initial objective was the improvement of traditional materials and construction methods and to develop new ones.

During the two decades of fifties and sixties, considerable research and investigations were carried out on building materials, engineering and structural aspects of buildings and their foundation, problems of comfort in buildings and their durability The activities also included basic research and fundamental studies coming within its purview such as X-ray studies and differential thermal analysis of clays and their electro-chemical and rheological properties, stress and strain in structures The Institute afforded facilities for training of personnel for diverse types of construction and helped various construction agencies in adopting new tecniques and materials of construction. It also carried out industrial surveys and dissemination of scientific and technical information through a well organised information service

The success of CBRI in developing low-cost construction techniques attracted the attention of several large construction agencies, particularly in the public sector. These agencies were eager to adopt these techniques in a big way with a view to substantially reducing the cost of buildings, specially repetitive types like schools, health centres, which were to be constructed in large numbers all over the country. This offered an excellent opprtunity to the Institute to get some of its findings implemented in a big way. The Government of Uttar Pradesh came forward to entrust the construction of 5,000 primary school buildings in rural areas to the CBRI The Institute took up this challenge and diverted a considerable portion of its manpower to this School Building Project, involving an outlay of the order of Rs. 50 million. It completed the constructions establishing a saving of the order of 20 per cent in cost and 50 per cent in the time of construction. Similarly, for health buildings for U P. under the World Population Project the Institute has designed and assisted in the construction of a large number of primary health centres, family planning centres, sub-centres and allied buildings

Demand for New Techniques

With the successful completion of the two major sponsored projects on school buildings and health buildings the Institute has gained the confidence of many mojor construction agencies in the public and private priate sector and they are approaching the Institute for help in demonstrating the new low-cost construction techniques and training their engineers by undertaking a sizeable portion of their construction programme. This has necessitated the creation of a separate Construction Unit which has started functioning towards the end of 1975. The Extension Cells of the Institute located at Calcutta, Bhopal, Ahmedabad, Hyderabad and Delhi, which were set up a few years back have also been put under this Construction Unit.

Thus, the work of the Institute is new organised in 9 Division namely (1) Building Materials, (2) Soil Engirlls (3) Efficiency of Buildings (Building Physics), (4) Building Processes, Plant and Productivity, (5) Architecture and Physical Planning, (6) Fire Research, (7) Rural Buildings, (8) Information, Survey and Planning and (9) Construction and Extension Unit.

Major Contributions

During the three decades of its existence the CBRI has contributed towards the development of the building industry in various ways and has now established itself not only as a picneer Building Research Institute in India but as one of the leading Building Research Organisations in the world. The expertise of the Institute is now being utilized not only in India but in several other developing countries. Some of the major contributions of the Institute during the last 2 to 3 years are highlighted here.

Pile Foundations

The Institute developed the technique of short-bored under-reamed and compacted concrete piles as an effective, safe and economical foundations in expansive black cotton soils and loose sandy soils. Besides giving stable foundations to the buildings, these piles cut down conventional foundation-cost by 20 to 30 per cent. Nearly, 35,000 crack-free buiedings have so far been constructed on these fonndations all over the country saving several crores of rupees to the nation. More and more buildings, transmission line towers, microwave towers' overhead tanks, bridge piers and a variety of other structures are being built on such piles.

These techniques are gaining popularity even in the developing countries The 63 km long, 132 KV Transmission Line in Dubai (U.A E.), for the foundation of which this Institute is a consultant, would be coming up on these piles British consultants on the project have been convinced of this technology.

Successful completion of the ground under-pinning operation as a measure of rectifying the foundation of Ammonia Tank at Cochin is another feather in the cap of the Institute about which not only the Institute but the country could be proud of. The Ammonia tank 40 m in dia meter and 17 m high was supported by a thin R C.C raft resting on concentrically placed 217 number cast-in-place concrete piles. This tank which was designed for a capacity of 10,000 tons, failed when test loaded to little over 8,000 tons. The German firm which was the consultant suggested shifting the tank to some new location and reducing the foundations. This operation alone was to cost 65 lakh rupees excluding the cost of new foundation, which was estimated at 40 lakhs (in foreign currency). Construction time was stipulated as 18 months. This Institute analysed the causes of foundation failure and came out with a proposal of underpinning the tank at a cost of only 37½ lakh rupees all in Indian currency, while other firms

Prof. Dinesh Mohan is Director and Shri P.L. De is Scientific Coordinator of CBRI

in India quoted 60-80 lakhs for the job. The proposal of the Institute required only seven months for execution. It was based on the concept of compensated foundations. It was decided to lift the settled tank back to the position by simultaneously operating 400 jacks. The German consultants were opposed to the idea because it was impracticable in their view. The Institute took a firm stand on its proposal, deputed its own scientific staff right through the execution of the rectification works, monitored the behaviour during the test loading and completed the assignments successfully in record time. Thus on this project, the Institute saved the country a foreign exchange to the tune of about 65 lakhs by providing an ingenious and bold solution which baffled other consultants including foreigners at the implementation stage.

The Institute is now fully geared to tackle all kinds of challenging assignments in foundation engineering effectively, expeditiously and economically. It can offer consultancy the foundation engineering which, hitherto required the services of foreign experts.

For providing an effective cut-off for seepage waters, a simple process of constructing a thin diaphragm wall has been evolved by the Institute. It has been successfully used at 15 sites in U.P. including Sarda Sahayak Pariyojna. On this project, diaphragm walling was adopted as an alternative to steel sheet piles which are often imported. The technique effected a saving of about Rs. 60 lakhs.

Systems for Low Cost Housing

(a) *Concrete Skeleton System* Greater stress is being laid on housing for the economically weaker sections of the society under the rural development programme. Since most housing schemes for such people envisage the use of aided-self-help, the concept of construction in stages with durable support and roof in the form of skeleton is more suitable. The concrete skeleton system consists of recast pocket footings, hollow columns, beams, joists and D.C. tiles. Th system was adopted for construct on of 42 houses in Karimnagar district n Andhra Pradesh.

(b) *Prefab Brick Panel System* : It provides a very economical and speedy system of construction. This system was used by:

(i) Rural Engineering Services Deptt. of U.P. for Harijan Housing,

(ii) Ghaziabad Improvement Trust for constructing 1550 houses for these people are also being constructed nowadays,

(iii) A housing colony for landless labourers in Village Sunehra (U.P.).

(iv) Bengal Engineering Group for constructing 52 houses for their jawans,

(v) U.P. Avas Nigam for constructing 50 Refugee houses at Hastinapur (Meerut).

Besides, Harijan Avam Nirbal Varg Nigam in U.P. has agreed to adopt this system for constructing Harijan Houses in U.P. In the first phase 18000 houses are proposed to be constructed. U.P. Avas Nigam has adopted the system for 100 houses for E.W.S. and 600 houses are to be constructed in the near future by Rural Engineering Services Department U.P. 200 houses are under construction at Ahmedabad for E.W.S. by the Gujarat Housing Board.

(c) *Stone Masonry Blocks* : A scheme of producing precast stone masonry blocks of 30 cm x 20 cm x 15 using stones upto 12 cm size and lean cement concrete mix has been developed at the Institute. These blocks have one face with stone texture and weigh about 21 kg. These can be easily produced at factory or at site in timber or steel moulds with ordinary labour

This technique has been adopted by (a) Rajasthan Housing Board–over 120 houses; (b) Himachal Pradesh Housing board 100 houses; (c) Delhi Development Authority – 28 houses; (d) Andhra Pradesh Housing Board – 120 houses ; (e) A.P. Police Housing Corporation – Police Rest House; (f) A.P. Zila Parishad Karimnagar 100 Panchayat Ghars; (g) U.P. Housing Board – 26 houses; (h) U.P. School Buildings in Hilly regions – 2 numbers and (i) Madhya Pradesh Housing Board 200 houses

Health Centres and Rural Schools

The designs and techniques of the Institute have been adopted for the construction of more than 600 Health Buildings costing Rs. 5 crores in six districts – Saharanpur, Muzaffarnagar, Lucknow, Sultanpur, Rae Bareily and Partapgarh in U.P. These Health Buildings include among others, Primary Health Centres, sub-Centres, Family Planning Centre, Maternity Homes and Auxiliary Nurse Mid-wife Training Centres.

The recommendations of the Institute on Planning and designing of such health buildings will be further utilised for the plannig of other standard buildings required by the Government of India for Health and Family Planning in the country.

After the implementation of massive school building programme of constructing about 2500 houses, in Uttar Pradesh, Government of Orissa has shown interest in the new techniques of construction evolved by the Institute. In the first instance 30 prtotypes of school buildings and three types are being put up. After their evaluation the State Govt. will adopt one of the types as their standard design for the State.

The Institute has designed and developed a number of designs for prefabricating roofing and flooring units which lead to economy in cost and time. Besides, they consume less cement and steel as compared to conventional R.C.C. slabs. These prefabricated roofing schemes have been adopted in several large projects in Bhopal, Delhi, Ahmedabad and other places.

Bricks from Inferior Soils

Black cotton soil is not suited for brick making. Bricks moulded from such soils develop cracks during drying and possess very low strength The Institute has found a solution to this problem where about 20 per cent of 'grog' (particially calcined soil) is added as an opening material. This reduces the elasticity of the soil, prevents cracking of bricks and also improves its strength Brick kilns, using this technique, are successfully operating at Indore and Bhopal with the cooperation of the Madhya Pradesh Housing Board and Capital Project Authorities Several private industries have also adopted the process

Huge quantities of industrial and agro-industrial wastes such as flyash, slag, coconut fibre, rice husk and lime sludge are available in our country. Some of these pose a serious problem of disposal. The Institute has found the following uses for these materials

(i) Flyash for making cement, concrete, sintered aggregate, clay bonded flyash bricks,

(ii) Slag for masonry cement,

(iii) Coconut husk for making corrugated roofing sheets and partition boards;

(iv) Rice husk and lime sludge for making cementitious binders and building boards

Solar energy is abundantly available in the country. With a view to utilising it, the Institute has designed and fabricated solar water heaters for domestic use and for use in large establishments such as canteens, hospitals etc. Domestic solar water heaters designed by the Institute are now being commercially manufactured in the country.

The Institute has at present 100 research projects in hand, out of which 16 are sponsored by the industry, besides several consultancy projects.

The research results are published in the form of research papers in Indian and foreign journals while the new ideas of design, construction techniques and materials are popularised through Data Sheets, Building Digests, Building Material Notes and Technical Notes, published by the Institute. Advance summaries of papers sent for publication are brought out in the quarterly CBRI Abstracts.

Consultancy Services

Besides undertaking sponsored projects, the Institute renders testing and consultancy services to the industry and construction agencies. The newly started Construction Unit and the five Extension Cells (Ahmedabad, Bhopal, Calcutta, Hyderabad and Delhi) attached to it are particularly geared to undertake sizeable demonstrations for the construction departments in the public as well as private sectors and to train their field staff and engineers in the adoption of new techniques. The Institute maintains excellent Information, Documentation, Reprography and Library Services not only to serve the scientists of the Institute but to extend it to the Industry. Training facilities are also provided to nominees from industry as well as students and teachers from technical institutions.

Perspectives

Out of the total Plan outlay of over 55,000 crore rupees in the Fifth Five Year Plan about 4,500 crore rupees will be spent on housing alone. Besides, huge amounts will be spent on other types of buildings like edudational buildings, and storage buildings. It can be roughly estimated that out of the total Plan outlay about half goes to constructions of one type of building or the other. Particular stress is being given in the Fifth Five year Plan towards rural housing. Building Research must, therefore, of necessity, be concerned with the problems which are expected to be of interest to the industry and the users even ten to fifteen years hence. With this end in view, a perspective plan for research at the Institute for the next ten years has been formulated after discussions with experts comprising architects, engineers and builders. The areas of study are broadly classified into Environmental Research, Materials and Fire Research and Engineering Research.

Huge quantities of rice husk is available in our country. These can be used to m[illegible] cementitious binders.

Pic. shows production of cementitious material from rice-husk

Under Environmental Research major projects will deal with the influence of environmental conditions on the thermal sensation of human being and utilisation of solar energy. Studies will also include spaces and their inter- relationship in residential buildings, modular coordination and building byelaws. Urban planning studies will include formulation of density patterns and land use pattern of new housing developments.

Under Materials Research a wide range of materials will be covered with the main objective of improving the quality and productivity of conventional materials and developing new ones. Special emphasis [illegible] be given to the development of l[illegible] weight materials, utilisation of a[illegible] cultural and industrial wastes [illegible] use of plastics.

Fire Research will be consider[illegible] srengthened with the installa[illegible] of large furnaces for testing [illegible] scale building components.

Engineering Research will [illegible]clude major projects on soil-st[illegible]ture interaction, soil anchors, che[illegible]cal grouting, industrialised bu[illegible]ing techniques, cellular and li[illegible] weight concrete construction, met[illegible] studies on building operations [illegible] various types of rural cons[illegible]tion.

Alongside the development of [illegible]search activities, auxillary scie[illegible]fic services like Extension, l[illegible] size demonstrations, Informa[illegible] and Survey, Industrial Liai[illegible] and general technical services [illegible] workshop facilities procuremen[illegible] equipment and stores, will have [illegible] be expanded to meet the incre[illegible] need of the scientists and to rea[illegible] better and quicker utilisation of [illegible] results of research for the be[illegible] of the Nation.

Impressive Work in Cement Research

THE CEMENT Research Institute of India (CRI) was visualised almost two decades ago, conceived in 1962 as a national R&D centre based on co-operative principles and started functioning towards the end of 1966 with the setting up of its nucleus in Delhi.

The main laboratories of the Institute are located at Ballabgarh in Haryana, 30 kilometres from Delhi. A pilot cement plant with various auxiliary machinery for unit operations capable of use both individually and collectively, is located at Muduvathur near Tiruchirapalli in Tamil Nadu.

The organisational arrangement of CRI has been conceived on the basis of the Matrix Method of R & D Management by Objectives The management structure consists of the infrastructure and the operational structure The infrastructure, in turn, has three distinct limbs, namely, the faculties, the facilities and the services and management controls The operational structure, on its part, has two distinct limbs, namely, the technology generation and the technology transfer activities The essence of the matrix system is to bring out a conceptual distinction amongst the various activities of the Institute whilst retaining the infrastructural wholeness of the talent, equipment, environment, technical and general services and controls, and achieving fulfilment of the objectives through a balanced integration of these inputs on the basis of non-hierarchical multi-dicisplined teams working to time and cost targets. The physical units which make up the infrastructure form a separate entity by themselves, similarly the independent testing activity forms a separate part of the operational structure.

The ten faculties of the infrastructure, subjectwise, are geology and mining technology; raw materials, silicates and lime technology; design and development of plant and machinery; process engineering; cements, asbestos cements, and industrial and agricultural wastes utilisation technologies; packing, handling and distribution of cement; concrete technology; concrete architecture; structural engineering; and construction technology.

Discipline-wise the faculties are, basic sciences; technology transfer sciences; industrial information and talent, development sciences; statistics and computer sciences; agricultural and rural technologies; management sciences; and industrial economics

Research Tools

The Institute has at its disposal some of the most powerful tools of research, such as electron-microscope, infrared spectrophotometer, atomic absorption spectrophotometer, X-ray fluorescence spectrometer, X-ray diffractometer, electron probe micro analyser, hot stage microscope, DTA-cum-TGA equipment, laboratory equipment and pilot plant facilities for various aspects of cement manufacture, equipment for non-destructive testing, test cylinder plant with pulsator, electrical, mechanical and acoustic strain gauges with data acquisition system, and photo-elastic apparatus for two-and three-dimensional studies. Meriting special mention in this regard are the multipurpose test rig and the controlled test rooms The test floor is served by an overhead crane of 10 tonnes capacity traversing the entire length of the floor The floor can take concentrated load of 100 tonnes at any point. The box section of the floor has five cells one of which is 4 1 metres wide and accommodates a 19 metre long, 300 tonne capacity pretensioning bed blanked by a hatch of over 22 metre length opening to the top surface of the test floor. The 400 metre thick flange of the reaction forms the deck for application of horizontal loads. The entire reaction due to this is transmitted to the test floor because of the integral construction of the well and the floor.

Large-scale horizontal loading, such as of earthquakes, wind, water or earth pressure can be conveniently simulated with the help of the reaction wall. The entire instrumentation system related to the use of the test floor could be monitored with precision dial gauges, electrical load cells and a modern 200-chanel data acquisition system. The test block is annexed to three of the engineering blocks which may use it for such diverse purposes as testing structural components, pre-tensioning for pre-cast concrete work and assembling/installing plant and machinery. There are ten controlled test rooms, with differing areas ranging from 20 to 98 m², and temperature and humidity combinations to provide test conditions characteristic of any part of the globe. With all the foregoing facilities in equipment, the Institute is now capable of effectively dealing with most aspects of materials science, design and technology relevant to cement, cement machinery, concrete and construction industries

The technical services of the Institute have two distinct parts – one dealing with materials management; and the other comprising workshop and laboratory services including machine shop, smithy, welding and glass blowing, carpentry shop, mould and reinforcement working areas, and instrumentation shop.

Functional Lay-out

The planning and layout of the building in CRI has been done on the basis of an integrated approach engendered by the matrix method, avoiding visible and marked geographical boundaries for the main divisions or departments. Accordingly, with regard to the equipment facilities, the layout provides for their installation, operation and use as a community of R & D facilities available for all in the Institute and not as parts of water-tight compartments or divisions. Likewise, the layout for centralised facilities for the materials management and the workshop services flows from considerations of efficiency. Lastly, the semi-open system of seating personnel, provided for in the layout and duly adopted, ensures maximum visual connection and opportunities for frequent interaction between all levels of staff engaged in similar activities and at the same time an atmosphere conducive to creative activity around the scientists.

The buildings comprise five two-storey blocks with reinforced concrete slabs, beam and column cons-

ruction. Precast ribs and skins ave been used in the floors and roofs. 'he exterior walls are of composite onstruction with precast reinforc-d concrete panels on the outside nd burnt clay bricks on the inside. 'he auditorium, with a 15 m x 5 m tage, has a seating capacity of 450. ts roof has been particularly design-d as a folded plate and special care as been taken of acoustics. While naking the most of the strength, ersatility and beauty of concrete, he buildings betray no attempt at eing spectacular for their own ake. In other words, they are rather nique in combining modesty, najesty and functional efficiency vith strength, boldness and charac-er. The design has been made exible to take on not only additions nd expansions but rearrangements f internal functions as future deve-opments may demand.

The Institute has already complet-d 156 R& D Projects out of which 3 were sponsored by industry and aid for. The Guide will at once nake for speed and economy in xploration consistent with reliable roving of the deposits. On the use f wastes, five techno-economic asibility reports have been made vailable for the manufacture of ortland pozzolana cement from yashes obtained from five thermal ower stations in the country. The nstitute has developed and stan-ardised rapid chemical and instru-nental methods of analysis for ement and its raw materials.

achinery Development

A break through has been achieved the design of mini cement plants nd the technology of cement manu-cture by vertical shaft kiln. Ac-rdingly, the 25 tonnes per day ant at CRI's Tamil Nadu Centre s been redesigned and restructur-and is now in regular production. e appropriateness of mini cement ants to the north-eastern region India has been shown. CRI has w taken up project work on mini ment plants at Garampani in sam and Nanded in Mahara-shtra.

Functioning as the nodal point for engineering design and develop-nt of the first 2,000 tonnes per y cement plant in the country, at instance of the National Com-ttee for Science & Technology CST) the Institute has examined various aspects, such as site lo-ion, transport problems and chinery specifications related to h a plant and made suitable ommendations to the NCST and the Government. CRI has prepared a document on the feasibility and engineering of medium and large cement plants in India.

Two draft standards on dimension-ing and design criteria for cement-rotary kilns and auxiliaries have already been issued at the national level.

CRI has provided the planning and engineering design for the ex-pansion of a cement plant in Sudan based on detailed on-the-spot studies conducted by two of its experts, and jointly with the prime contracting organisation.

The more common method of pac-kaging cement in India, that is in jute bags, entails seepage losses and risk of deterioration in quality due to moisture ingress. To over-come these drawbacks, CRI has developed 19 alternative designs of bags which are of composite cons-truction using jute, hessian, and a suitable plastic film, and have a specially designed value system. Extensive field trials on the bags have confirmed their suitability for practical use.

Formulation of a cement-based non-shrink grout for use in founda-tions for heavy machinery, such as centrifugal compressors and high speed motors is another major deve-lopment from CRI. Three large fertiliser complexes in the country have saved nearly three million rupees in foreign exchange through its use.

CRI has carried out dynamic analysis for a 170-metre high doubly-curved arch dam at Idikki in Kerala State for minimum reservoir level and for upstream/downstream mo-tion condition caused by an actual earthquake accelerogram. The adequacy of sheer keys was checked using the theoretical normal and sheer stresses obtained for the critical sections.

Two large fertilisers complexes in the country have adopted CRI's recommendations for concrete foun-dations in aggressive soil and subsoil water conditions with excessive acidity, sulphate and/or chloride concentrations, prevailing in their project sites.

CRI has evolved economic designs for reinforced concrete poles and prestressed concrete poles, for power distribution in rural areas, which have since been accepted by the Rural Electrification Corpora-tion Ltd. In the context of a stagger-ing annual demand of two million poles for power distribution in the country, a saving of Rs. 10 million is anticipated in manufacturing cost from the adoption of these designs.

Improvements suggested by CRI in the manufacturing techniques and testing methods of prestressed conc-rete railways sleepers have brought down the rejection rate of sleepers to between two and five per cent.

A rural house and a two-tonne capacity grain storage bin have been designed and prototypes construct-ed within the CRI campus, Ballab-garh. Not only are these based on locally available materials but also they call for the minimum use of skilled labour and time for cons-truction. The cost of the housing unit is approximately Rs. 2,700 and that of the bin Rs. 250.

A Place of Pre-eminence

The Cement Research Institute has acquired a unique combination of the latest in facilities, talents, skills, and experience. Measures by the scope of its planned missions and the volume of work already done, and its potential in terms of men (many of them internationally known) and materials, the Institute has carved for itself a pre-eminent place not only in the eyes of the indus-tries it serves but also among R&D institutions of its genre in the world.

The Institute has a technical in-formation service with a library, journals and translation and photo-copy facilities to help technology transfer from developed countries It has a purposive programme of traning personnel. A special scheme exists to help cement plants adopt R & D results of CRI. There is, besides, a standard reference service for calibration of testing equipment, supply of reference material, help to industry in sett-ing up testing laboratories and for personnel training in test methods CRI plays a vital role in standardisa-tion and quality control. □

"People always called me a crank, but. I didn't carry any resentment about that, because it is an excellent thing, a crank. It is not expensive, it is relatively non-violent, and it causes revolutions".

E.F. Schumacher

author of "Small is Beautiful"

Studies in Jute

THERE ARE three laboratories in India which are principally engaged in research and development pertaining to jute. Two of them, namely, the Jute Agricultural Research Institute in Barrackpore and the Jute Technological Research Laboratory in Calcutta belong to the Indian Council of Agricultural Research. The third laboratory is the Indian Jute Industries' Research Association (IJIRA), also located in Calcutta

The origin of IJIRA goes back to 1937, when Indian Jute Mills Association opened a research department which was subsequently expanded to a full fledged research institute In 1966, the Indian Jute Mills Association Research Institute was reconstituted as a separate entity under the patronage of CSIR. This new organisation, IJIRA, an autonomous Cooperative Research Association, registered under the West Bengal Societies Registration Act of 1961 is patterned on cooperative research associations for textile fibres, tea, cement and plywood.

The Association has as members jute mills and other factories connected with jute, such as makers of machinery, instruments, chemicals and auxiliaries, chemically finished jute products and so on. Since the income collected by voluntary subscriptions has not been adequate, the Government of India has from last year levied a compulsory cess on jute goods. The proceeds of this cess are disbursed by a Development Council which has been set up by the Government, the major amount being turned over to IJIRA. IJIRA also receives substantial monetary support from CSIR and from the Commerce Ministry, which sponsors projects. The present outlay on research and development comes to only about 0.21 per cent of the turnover of the industry, which is desperately competing with synthetics and rival productes of jute goods

Decorative jute fabrics prepared through techniques evolved by IJIRA

Research Areas

IJIRA has mounted a multi-pronged effort to develop better strains of jute with higher yield; evolve special biological techniques for improving the results of natural retting; evolve a technology of treatment of jute with various chemical additives for improving the spinning behaviour and reducing odour and toxicity of jute goods; simplify the existing preparatory sequence for jute and reduce the number of machines involved, while improving the regularity in processing; develop radically new technologies for spinning jute; improve the productivity of jute looms by adaptations of the technology of weaving yarns from other fibres; improve the performance and reduce the cost of selected jute products, in order to make them more competitive for international and domestic markets; evolve a range of new products from jute such as decorative and furnishing fabrics, yarns and cordage, unions of jute and synthetics in order to diversify the usage of jute; introduce quality, process control and standardisation into this industry; and design a range of testing instruments especially adapted for jute goods.

Several of IJIRA'S results of great value in cost reduction, quality improvement and product diversification have already been implemented by the industry. It would be realistic to claim that the industry can gain between Rupees five and ten crore per annum by implementing the findings of IJIRA.

The future programme of IJIRA is to strengthen its activities in technical consultancy, quantitative management techniques and machinery design. It is also planned to institute studies in industrial psychology and behavioural sciences in order to see how the winds of innovation and change can be made to sweep through this tradition-ridden industry. □

TEXTILE RESEARCH—2

Man-Made Fibres

J.G. PARIKH

THE SILK and Art Silk Mills Research Association (SASMIRA) came into existence in 1950 as a Cooperative Research Association of man-made textile industry in India, under the auspices of the Council of Scientific and Industrial Research (C.S.I.R.).

The man-made fibre weaving industry consists of a number of small units most of them set up for a single process. The technical and testing services initiated as one of the first activities of SASMIRA continue even today as one of its important activities.

Various fibre and fabric defects that develop during the process of operations hamper the productive efforts This results in the distortion of the quality of the product. SASMIRA helps in the overall improvement and re-organisation of man-made fibre fabric units from the preparatory to the finising sections thereby strengthening and improving the technical base at every stage of production.

Standardisation

Research and Development work on indigenous fibres and fabrics has helped standardisation of yarns and fabrics. Basic research had been carried out in improving the resistance of polyamide fibric to sunlight to suit the tropical climate in India. Study of utilisation of indigenous auxiliaries for man-made textile has helped in promoting use of these auxiliaries in the Industry.

At present nylon georgette fabrics are fixed on the screen printing tables with pins involving considerable amount of time. Moreover, unless the pins are fixed very close to each other, some distortion of fabric is inevitable resulting consequently in distortion of the printed design. SASMIRA has indigenously developed a suitable adhesive for fixing the cloth on the table and its use for a number of printings of the same design This adhesive has helped in saving considerable amount of time resulting in increasing productivity and in production of damage free printed fabrics

The organisation has been developing different types of man-made fibre fabrics for defence and industrial uses. Among the fabrics developed for defence requrements are acetate map cloth, nylon wind breakker fabrics, nylon body armour cloth, foam backed fabrics, nylon parachute, dual shade nylon fabric etc. The fabrics developed for industrial use are nylon filter fabrics for the tea industry, viscose tyre cord yarn fabrics, viscose tyre cord jute union fabrics for furnishing.

On a machinery modification programme, Sasmira has made modifications of an indigenous automatic loom for weaving of high density polythlene Work was also done on the development of glass fibre fabric

Instrumentation

One of the most important contributions is in instrumentation The textile industry requires a number of testing yarn and fabrics to ensure quality control. These instruments are mostly imported. SASMIRA has developed twelve instruments for testing various properties of yarn and fabrics

The textile testing instruments developed include Crockmeter, yarn examining machine, crip rigidity tester, crease recovery tester, crimp tester, pilling tester, stiffness tester, launderometer, perspirometer, hydrostatic dome tester, hydrostatic head tester and thermal conductivity apparatus.

The Invention Promotion Board has awarded a silver shield to SASMIRA for the indigenous development of perspirometer. ' National Research Developm Corporation of India has awar Certificate of Merit for the digenous development of stiffi tester.

Demand surveys have been un taken for synthetic fibres like ny filament yarn, polyester filam yarn, nylon staple fibre and polye staple fibre. Feasibility surveys the establishment of weaving processing units have also been dertaken. Special surveys v conducted on the potential dema for some specific man-made text Recently studies of common i rest to industry such as export tential of man-made fibre fab consumer preference for text etc have been done.

Technical Education

The need for a technical cadre the industry was felt even in early stages of starting the indu This was because the industry started on the basis of imported t nology, and for the continuanc the industry it was imperative the imported technology shoul assimilated and improved by indigenous technical talent. It necessary to have skilled wor and trained technical personne manage the various functions of industry. SASMIRA did pion ing work in this regard by s ing the Institute of Man-made ' tiles in 1961. This is the only I tute of its kind in the Asia im ing education in man-made te technology at various levels s ing from worker's trai and going up to post-grad studies.

The courses include certif courses in weaving, wet-proce and warp knitting of man-m textiles, as well as dyeing and fi ing of wool, diploma courses in tile technology and textile chemi as well as post-graduate cours management and marketing of r made textile. These courses recognised by the Board of Te cal Education, Maharas State.

The man-made textile indust concentrated in Punjab and besides Bombay. The industr these states need on-the-spot te cal and testing facilities. For purpose, SASMIRA is settin its Regional Centre at Am and Surat.

A demonstration plant for duction of synthetics fibres UNDP and West German h being set up. □

Shri Parikh is Director of the Silk & Art Silk Mills' Research Association, Bombay.

TEXTILE RESEARCH—3

Shaking Off Tradition

THE AHMEDABAD Textile Industry's Research Association, popularly known as ATIRA, was set up in 1949 as a cooperative research association jointly supported by the textile industry and the Government of India. The membership of ATIRA is voluntary and open to all companies engaged in textile manufacture and allied fields. The present membership is 152 units spread all over India consisting of textile mills, manufacturers of textile machinery, accessories, dyes and chemicals, and cooperative societies of cotton farmers and ginners

In the early stages of its growth, ATIRA had to strive hard to win Industry's acceptance The Indian textile industry had grown in an atmosphere of adherence to tradition and empirical thinking and methods. It was but natural for the managerial and technical staff to question the value of research. In this phase, ATIRA concentrated on implementing established research results obtained elsewhere and on introducing scientific concepts. For instance, it could be demonstrated that the high level of end breaks in ring spinning was due to poor maintenance of certain vital machine parts Appropriate remedial steps brought down the end breakage rate and boosted productivity. Similarly, a series of recommendations helped reduce the waste in carding and combing without impairing quality. The promotion of the concepts of quality control sharpened industry's awareness of the need for systematic data collection and analysis

The benefits of these recommendations were apparent to the member industry in a relatively short time. As a result, industry's acceptance of the role of research and receptivity to research recommendations grew rapidly.

Testing and Process Control

About 25 years ago, when the Indian textile industry was importing even the simplest of instruments needed for testing and process control, ATIRA launched a programme for the design and development of such instruments Over the years a total of 12 instruments have been developed India is today self-reliant in instruments needed for textile testing and process control. Given the socio-economic constraints operating in India, the textile industry, or for that matter any other industry, will have to remain broadly within the conventional technology and modify it for higher economy and quality. Some examples of this type of designing activity are : design changes in nonautomatic looms and ring spinning machines for higher productivity, improved mechanical yarn clearer to remove yarn faults and systems for recovering waste heat and for reducing consumption of power, fuel and water.

It has been possible to develop substitutes for various chemicals which are expensive, imported or not available in plenty For instance, a process has been developed to convert tamarind kernel powder into a form suitable for textile sizing This development has led to the replacement of starches from maize or tapioca which are edible materials, and also to an industrial outlet for an otherwise waste product, similarly, substitutes have been developed for sodium hydrosulphite, sodium alginate, citric acid and zinc acetate which are all expensive or imported chemicals widely used in dyeing and printing. Other dveelopments include new catalysts in printing and finishing which lead to saving in power consumption and higher productivity.

New Processes

The know-how for the durable press finish or polyester/cotton fabrics was developed a few years ago Apart from mills in India, Egypt has also purchased and utilised this know-how. A similar finish for all cotton fabrics and garments is ready for release and is expected to be of great use in promoting exports. Shorter methods for bleaching of polyester/cotton and all-cotton fabrics have been developed. These methods permit a reduction in the processing time and chemical costs and will be particularly suited to mills with modest volumes of production.

Methodology has been developed to use the computer in the formulation of recipes for dyeing with vat colours. This technique provides in a very short time the recipes to match a given shade and minimises the number of trial dyeings. Since the cost of the individual dyes is also taken into account, the recipe predicted by the computer often leads to a significant saving in dye costs as well.

The contribution of various processing parameters in spinning to yarn quality and processing performance has been studied in detail. It has been shown that insufficient separation of fibre clusters during carding is a major cause of thick place and slubs in the yarn. The causes of variation in yarn count and strength have similarly been identified The findings of applied research on the interrelationship between indices of yarn quality on the one hand and cotton, machinery condition and processing parameters on the other have been integrated into a practical system of process control The developments in spinning – high speed machines shorter processing sequences have been critically assessed through appropriate trials.

In the area of weaving, the problem of high warp breaks in weaving has received considerable attention The contribution of different type of yarn faults, yarn hairiness and inter-yarn abrasion during weaving has been isolated. Some of the remedial measures evolved are: the improved mechanical yarn cleare already referred to; after-waxing of sized yarns, staggering tappet for shedding, and modified ree design. Processing parameter have been optimised at the variou stages of preparing yarn for weaving The effect of critical factors on weaving performance and fabri appearance has been brought out As in the area of spinning, the information garnered in these studie has been employed to evolve a syster for process control.

Process optimisation studies hav been conducted for desiing, scouring and bleaching The importanc of maintaining strict control durin bleaching and scouring has bee highlighted.

Fuel economy has been an impo tant area of work all along-Sever measures have been evolved to r

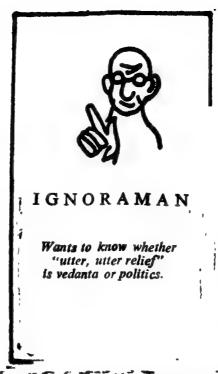
duce fuel consumption and to improve the efficiency of generation, distribution and utilisation of steam. Systems for recovery of waste heat have also been designed. In surveys of individual mills, the scope and value of these measures have been demonstrated.

Basic Studies

A limited amount of basic research is undertaken to support and supplement the programme of applied research and development discussed above. The areas of study are: structure and properties of cotton fibre and its physico-chemical modifications; structure and properties of starches, gums and other polysaccharides and their derivatives; and thermodynamics of reaction at the fibre/solution interfaces. The programme of basic research is largely handled by research scholars working for higher degrees. ATIRA has been recognised as a post-graduate institution by several Indian universities. Several of the instruments developed by ATIRA have also received awards from the Inventions Promotion Board and the National Research Development Corporation. The United Nations Development Programme (UNDP) has recently sponsored a project at ATIRA for the development of new chemical finishes for cotton

Consultancy and Technical Services

The most important aspect of consultancy provided by ATIRA is the operational survey of production departments from fibre to finished fabric. The operational surveys cover: examination of raw materials; processing sequences, parameters, and conditions; product quality; waste level; and labour and machine productivity. Wherever necessary, the raw materials, intermediates and finished products are tested in ATIRA's laboratories This factual information is utilised to identify areas and causes of sub standard performance and to suggest remedial measures. Depending on the wishes of the client, assistance is also extended for implementation of the recommendations. Annually, ATIRA handles 50 to 60 operational surveys. ATIRA offers consultancy in the area of modernisation as well.

Members also refer ad hoc problems to ATIRA. As a rule, these problems refer to specific product defects or processing difficulties. From plant observations and laboratory tests, the nature and probable

causes of the problems are identified and corrective steps recommended. On an average, 500 ad hoc problems per year are referred to ATIRA

Limited consultation is offered in the managerial areas also. Assistance is given to member mills in setting up modern information and control systems product costing, cost analsis, electronic data processings—as well as for establishing suitable procedures for personnel recruitment, training and appraisal

Inter-firm comparisons are periodically conducted on (a) productivity in spinning and weaving; (b) quality of yarns and fabrics; (c) production costs and financial performance and (d) consumption of accessories. Participation in these surveys ranges from 30 to 70 members. The information collected during such surveys is used to establish industrywide norms on different aspects of productivity, quality and profitability. Each participating unit receives an individual report which brings out its strength and weaknesses and indicates the necessary management action. These surveys are also a a valuable source of information for analysing the trends and shifts in the industry.

ATIRA's testing facilities are available to member mills for routine physical and chemical tests of fibres, yarns, fabrics, dyes and chemicals, water, coal and certain accessories and machine parts. Members can also avail themselves of sophisticated tests like electron microscopy, x-ray diffraction and infrared spectroscopy.

Training and Liaison

Several training programmes, each of two to five days duration are offered each year. On an average, about 250 middle line supervisors from the industry participate in the training programme every year.

Information on completed research projects is conveyed to industry in the form of research notes and technical leaflets. A quarterly technical digest keeps the member industry uptodate on current research projects. Group liaison meetings on selected topics are regularly conducted in which groups of mills in the vicinity participate. Annual liaison visits are paid by senior staff members to every outstation member. Seminars on subjects of topical interest are arranged periodically. Annual and theme oriented conferences are also held which attract about 500 participants.

The ATIRA laboratories and pilot plants are housed in a building with a total floor space of over 1,00,000 sq ft. The pilot plant has facilities for spinning, weaving and chemical finishing of cotton and man-made fibres. Two mechanical workshops and an electronics instrumentation laboratory cater to the research needs of development and fabrication and are also entrusted with maintenance of machinery and instruments The physical and chemical testing laboratories have all the modern instruments for testing fibres, yarns, fabrics, auxiliaries and chemicals A wide range of sophisticated instruments are also available for specialised research studies. The more important of these are; scanning electron microscope, IR, UV and visible light spectrophotometers, nuclear magnetic resonance spectrometer and gas and liquid chromatographs. The well-stocked library receives about 350 periodicals and has over 20,000 books and back volumes of journals The library also provides service on subject bibliography, documentation, translation and microfilms. Computer facilities are shared with an adjacent laboratory.

It has been conservatively estimated that because of acceptance of ATIRA's recommendations/ developments, the industry has been able to save approximately Rs. 20 crore over the last twenty years; the savings in foreign exchange are approximately six crore rupees. □

New Instruments

AMONG the achievements of the South India Textile Research Association (SITRA) has been a major breakthrough in the development of a chemical process for improving the wear life of cellulosics. It has been found possible, by this treatment, to increase the wear life of cellulosics by 200 per cent. Two new industries have been established on a commercial basis for the application of this process One has already started commercial production of SITRALISED spindle tapes while the production of treated industrial fabrics is in the pilot mill stage. Application of this principle for other end uses like fishing nets, various types of marine fabrics etc., is in progress. This development has been patented.

Award-winning Inventions

In the field of machinery design and instrumentation the two-for-one twister and hank-to-cone winder developed by SITRA recently deserve particular mention. Both have been licensed for commercial production These machines are already available in the market.

The two-for-one twister is the first commercial machine developed by a research organisation in the country. Its development has revolutionised the doubling technology to the same extent as the introduction of a ring frame has revolutionised the spinning technology. It has been found possible by introduction of this machine to increase production in doubling by as much as 250 per cent. This means for a spinning mill of 25,000 spindles, a saving of three to five lakh rupees a year. Similarly the introduction of hank-to-cone winder not only has benefitted the organised sector but will cater to the decentralised sector like powerlooms by making available a sophisticated winding machine with increased production and improved quality.

Other machinery items developed include super highdraft spinning, open-end spinning, reeling machine with stop motion etc. Some of these machines have also been exported. Two of these developments have won awards from Inventions Promotions Board.

A number of testing instruments which are commonly used in the textile industry have been developed from indigenous sources. The trash analyser, the fibre bundle strength tester, the automatic twist tester, the electronic spindle speed measuring device and the yarn speed meter deserve mention. Most of these instruments have now been licensed for commercial production. These have resulted in considerable savings in foreign exchange as these instruments were, till recently, imported.

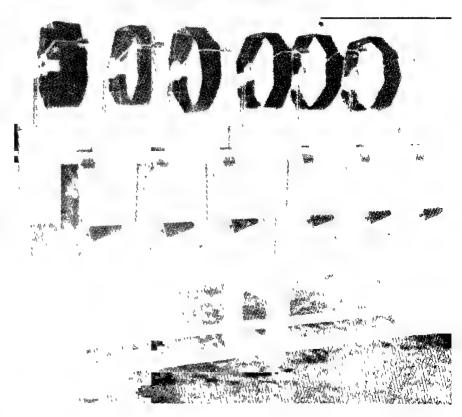
Product Development

In the field of product development also some significant achievements have been attained. The crease resistant raw silk fabrics is an example of work done in this field. To utilise the abundant quantity of raw silk available, SITRA has developed polyester silk blended fabrics. This material while retaining the quality and feel of natural silk has crease resistant and other easy care qualities of polyester fabrics. Besides increasing the scope for catering to sophisticated export markets, this will ensure the processing to a greater extent within the country of raw silk, now exported.

The polyester cotton-blended handloom sarees developed by SITRA is of considerable interest to the handloom industry in the country and makes it possible for them to produce traditional sarees of intricate designs having at the same time easy care qualities.

Fabrics produced out of unconventional fibres like ramie, jute waste, etc. are ideally suited for special end uses like curtain cloth, lamp shades, handbangs, and for the rural small scale industries

Hank-to-cone winder developed by SITRA has not only increased production but improved the quality of the fabrics.

sector.

Applied research activities of SITRA, besides process and product development, also cover studies relating to the upgrading of Indian cotton and its optimum utilisation as well as processing problems.

Work in the former area has revealed that it is possible to upgrade Indian cottons to spin even superfine counts, for which we were till now dependent on imported cotton, by removing 10 to 15 per cent of waste in combing This is significant from the point of view of better utilisation of existing raw material resources and savings in foreign exchange.

Some of the major studies in process development are: effect of processing variables on yarn quality, blending of synthetic fibre with cotton, combing performance, tendem carding, etc. These have not only contributed to improve yarn quality but also to increase he rate of production and improve working conditions of labour.

SITRA's studies on high production cards and ring frames, criteria for capital investment, development and replacement cost, have a special significance from the point of view of modernisation of the textile industry.

Cumulatively these studies have enabled processing parameters to be determined for yarn as well as fabrics manufacture Moreover machine factors which affect productivity have been identified. Higher speeds and shorter processes have also resulted. Taken as a whole the impact of work in this area will be impressive in that during the last two decades, the machine productivity in units which are members of SITRA has increased by 50 per cent and labour productivity by about 80 per cent. The benefit for the common man will be obvious when we realise that the cost of production of textiles has increased over the past decade by only 60 per cent as against the general increase in price of about 80 per cent. This will be even more significant when we take into consideration the fact that the cost of raw material which alone accounts for about 60 per cent of the cost of production, has gone up by over 200 per cent during this period

Operational Research

SITRA has developed a standard now commonly used for the measurement of productivity. The study of idle machine capacity done by SITRA and suggestions given have led to an average increase of 40 per cent in machine utilisation during the past 10 years. The machine utilisation in SITRA member mills is one of the highest in the world, about 80 per cent mills working seven days a week and 50 per cent of the mills round the clock

The systematic study in the field of waste reduction has resulted in a saving in cotton of 1 to 1 5 per cent in carding and 2 to 3 per cent in combing in many member mills For SIRTA member mills alone this means overcoming cotton shortage to the extent of about 25,000 bales a year

Consultation services form a significant part of the activities of SITRA Diagnostic surveys, techno-economic surveys, quality and cost controls, testing, selection and placement form major areas of activities in this field. These have enabled the industry to pinpoint the area of weakness in mills and to determine the degree of assistance necessary to overcome them. These also help industry in rapid modernisation and improvement Consultancy services, rendered in the solution of short term problems during the period of recession, have enabled the mills to overcome losses to a substantial extent, without incurring any major expenditure. The services rendered by SITRA to the public sector units in the industry have enabled them to organise on a scientific basis. The State and the Central governments and various financial institutions have been utilising these services for determining the degree and extent of assistance necessary for the industry

Two-for-one Twister, the first commercial mahine developed by a research organisation

Help to Handlooms

A study is now in progress for examining the scope for increasing productivity, reducing costs and improving quality in the handloom sector. The study also covers the scope for use in handlooms of sophisticated yarn.

There is considerable scope for diversifying production in the knitting industry Work in this area was launched with UNDP help, and the first phase of the programme came to a close recently Various types of products having good demand both within the country and abroad and which could be easily manufactured by the existing machinery have been identified For the industry to produce garments of acceptable standards, it has to modernise by application of latest scientific techniques and by controlling quality Operational research support in this area is being extended by SITRA in stages.

Basic research by SITRA cover fibre structure by X-ray diffraction studies, Frictional forces in cotton and regenerated cellulose fibres, taper of cotton fibre, effect of swelling agents on dimensional characteristics of fibres and yarns, irregularity of blended fibre assembly in ring and open-end spinning, tensile behaviour of yarn, factors affecting yarn irregularity, effect of atmospheric conditions on yarn quality, yarn hairiness, pilling in polyester cotton blended fabrics.

The membership of SITRA has increased four fold in the past two decades. □

Import Substitution

T. V. Ananthan

THE BOMBAY Textile Research Association (BTRA) was registeed in 1954 with a membership of 26 mill companies. In 1961 the pilot plant and laboratories were set up. BTRA'S membership is now 87 including an overseas member.

From the very beginning, the limited resources of BTRA have been deployed in areas where maximum benefits accrue to the largest sections of the member-industry, and the results of researches have been rapidly translated into fullscale processes *on the mill-floor* so as to bring about the 'pay-off' in minimum time. The tangible achievements cover gains through optimisation of processes, import substitution new processes and products, machinery research and instrument development, basic research and sponsored projects.

Researches in spinning have led to up-grading of cotton mixings, reduction in card and comber wastes, lowering of end-breakage rates, and substantial improvement in yarn quality and spindle productivity. Intensive maintenance audit has helped the mills reduce the proportion of idle spindles by 40 per cent and consumption of lubricants by 10 to 20 per cent. Similarly, studies in weaving have enabled saving in sizing materials, better control of stretch and migration of ends, and an overall improve ment in weaving productivity, with reduced defectives as bonus. In chemical processing, otpimisation ofkier boiling, mercerizing and bleaching have provided means for re-use of kier liquor, caustic soda recovery, re-use of water, and savings in fuel and steam utilisation. Mills could reduce water consumption by 20 per cent and fuel by six per cent. The norms established through operations studies cover productivity, wastes, manpower and inventory and follow-up action at unit level has resulted in savings in card waste, comber waste, hard waste and total labour employment.

BTRA processes for the partial substitution of sodium hydrosulphite in vat dyeing and complete substitution of rongalite in printing have received NRDC awards. These processes have been realised, at Government's request, for the benefit of the decentralised sector.

BTRA's novel electrolytic process for vat dyeing has won several awards, including the second highest Republic Day award for meritorious invention (1975). They have good export potential. A demostration unit has been recently set up in West Germany.

On a more modest scale, work done on indigenous wood for shuttles, *substitution of mutton tallow* with mowrah fat and instrument development, have also contributed to import substitution.

Among the new processes and products developed by BTRA to bring economies in processing or enhance the value of textiles through new styles and effects are singlestage process for bleaching of cotton fabrics in kier, singlestage process in jig for polyester cotton blends, rapid bleach process for cotton on paid-roll system, mono-step sizing-cum-dyeing for denims, process for substitution of conventional resisting agents in reactive and naphtol dyed gounds, fast acting catalyst system for pigment printing, saving in power consumption or increased production, additives for effective carbonisation of polyester sarees, blend finish for cotton, permament soft finish to cotton and polyester textiles, techniques for printing broken effects' on textiles and for polychromatic printing, chameleon and transparent prints fancy print for polyester and 30 print on nylon, 'dual-feel' for organdie fabrics and a low-cost oil stain remover.

Among developments in machinery and instruments are, gravity traps for the blowroom, fibre retriever for cards, stop-motion for reeling machines and for doubling and twisting frames, electrode systems for the novel electrolytic process, ring ovality tester, traveller stretch tester and gear run out tester, flyer balancing stand, automatic scrap reel, direct yarn count blance and spindle topping apparatus.

BTRA has successfully completed two PL-480 projects, namely, one on curling and bursting of selvedges and another on 'grafting co-monomers on to cotton'. third project on the effect of p finising preparatory processes strength retention of durable pr finished fabrics is under progres

More recently, the Ministry Commerce has approved two p ject proposals of BTRA realat to the development of durable flar retardant finishes for cotton a synthetic blend fabrics, and the duction of oil-stained damages textile by solvent scoring

BTRA is recognised as a cen for post-graduate research by Bo bay University, and member m have been coming forward w sponsored projects and fello ships.

From time to time, BTRA h rendered assistance to the Defe Establishment in product develc ment and standardisation; f example the combat wear life army drill was doubled by develc ing a construction containing per cent nylon-420 in the wa a durable water repellent finish f cotton was synthesized from digenous raw materials and sta dardised.

Similarly, the decentralised sec received the benefits of the BTF processes for partial substitution sodium hydrosulphite and compl substitution of rongalite. T Khadi and Village Industries Co mission also receives help a guidance in evaluation of improv spinning units and textiles.

Reference Literature

The surveys, shopfloor studies a research work done in the course years have enabled BTRA to provi the industry with standard and re rence literature for evaluation a improvement of day-to-day wor ing. More recently, the problem transition into a multi-fibre indus has come to the fore, and BTF has been assisting the industry a whole through timely publicatio

Industrial research is to be view purely as a commercial operatic and is to be judged from the retur it tides to the sponsoring indus Though qualification of benefits a difficult task, an attempt is ma to express the gains in moneta terms, taking only some of the i portant research contributio In relation to the total expendit incurred, it has been found that t cost-benefit ratio is 1 : 19, which a testimony to the successful wor ing of the cooperative research co cept for the benefit of the indus as a whole □

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Work At Calcutta

THE INDIAN Intitute of Experimental Medicine, Calcutta seeks solution of medical problems yet unsolved, through research in the basic biological sciences, emphasis being placed on the current biological and medical needs of the country. The Institute, originally established as an unofficial medical research institution by nationalist scientists in 1935 came under the CSIR in April 1956. During its first decade under the CSIR the Institute made significant contributions to cholera research; the bacteriophage typing technique it developed for the epidemiological study of cholera and its work on oral vaccine won international recognition for the Institute's scientific work.

During the last ten years the Institute's research programme has placed increasing emphasis on work of applied or industrial value. As a result of this reorientation of its work, the Institute has completed the development of three processes of industrial utility namely, preparation of acid protease for use as a leather bate, fractionation of plasma proteins at room temperature and preparation of gelatin optical filters. These processes have been assigned to the NRDC for release for commercial exploitation and the process for gelatin optical filters has already been released to an industrial concern.

Steroid Drug Industry

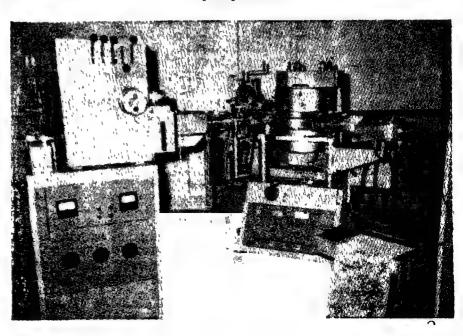
Work done during the last two years has led to a significant contribution of immediate value to the steroid drug industry. Diosgenin constitutes the staple intermediate on which the Indian steroid industry is based, and practically the entire output of diosgenin in India, is produced from wild *dioscorea deltoidea.* Newer and simpler sources of diosgenin are required to help the Indian steroid industry grow. The Institute has now identified the exotic weed *Kallstroemia pubescens* (G. Don) growing in the eastern region as a good source of diosgenin. The ease of cultivation, collection and processing compensates for its somewhat lower diosgenin content, and makes it a useful commercial source of diosgenin.

Synthesis of quebrachamine and rhazidine by a newroute has been achieved in the medicinal chemistry division. The neuropharmacological studies on quebrachamine and rhazidine are being carried out for its profound sympathomimetic activity. The important observation was that quebrachamine in addition to its central stimulatory property also affected the liver microsomal enzymes through indirect mechanism.

Among other investigations that have yielded significant results may be mentioned the work on a single strain vaccine for mass prophylaxis against both cholera and typhoid. The vaccine is based on a recombinant strain of *Salmonella typti* and *Vibrio cholerae*. Three transformant lines have been selected for study as vaccine strains. The transformants did not appear to have lost any of the original *S. typhi* antigens, and have been shown to evoke satisfactory antibody responses in rabbits In the course of this work a new mechanism mediating the transfer of genetic information among bacteria has been brought to light. This gene transfer process, whicl has been designated 'transplasmidisation' because it is mediated by the extra- chromosomal geneti elements, plasmids, appears t constitute the most prevalent systen of gene transfer among bacteria It has also been possible to transfe DNA from rabbit to an *E. col* strain, and to show that the trans formant is able to transfer th characters encoded in the DNA t the original wild-type recipients i series.

The Institute's work in the ar of reproductive biology is concentrated on a search for anti-fertility agents, particularly anti-implantation agents among Indian medicina plants. A compound extracted fron *Aristolochia indica* has been founc to possess potent abortifacient activity when fed to female mice on days 1-6 of pregnancy. Another extrac from the plant exhibited inhibitory activity on male gonadal functions.

Systematic investigations carriec out during the last few years or Parkinson's disease employing th 'oxotremorine model' of the dis ease in experimental animals hav yielded important new knowledge on the origin of tremor and other motor disorders associated with the disease Spinal motor mechanisms of contro and both the extrafusal and intrafusal skeletal neuromuscular transmission processes at peripheral leve have been shown to contribute to the genesis of Parkinson-like moto disturbances. These findings provided a new therapeutic approach to Parkinson's disease in particular. A number of new anti-Parkinson drug

Mass spectiophotometer

have already been identified on the basis of their effects at the peripheral myoneural apparatus

The Institute has been engaged in a programme of collaborative research on toxaemia of pregnancy with the Department of Gynaecology and Obstetrics of the Medical College, Calcutta. Findings of special scientific interest bearing on the aetiopathology of eclampsia resulting from this work are that serum and placental levels of monoamine oxidase are considerably lowered in eclamptic subjects and plasma fibrinogen is considerably raised. A definite rise in fibrinogen level and prolongation of clot lysis time were observed also in cases of abortion induced by hypertonic saline. It appears that sodium may have a common role in producing a hypercoagulable state both in toxaemias and induced abortions.

Studies on various hormones such as erythropoietin on its role in the metabolism – have been extensively done. Some of the inferences obtained show a specific role of this hormone in the metabolism such as in the processes involved in iodination in thyroxine biosynthesis

The Biophysics group is actively engaged in elucidating the mechanism of action of the drug furazolidone. Significant contribution has been made by finding out the interaction of furazolidone with DNA. Interesting development in this regard, is that furazolidone has significant photobiological activity which will be of help in future therapeutic use of this drug

One of the important aspects of neurobiology is the studies on biogenic amines. This Institute has made a significant contribution on the metabolism of monoamines. Some of the investigations show that there are two mechanisms through which these monomamines are oxidised. This is important because MAO inhibitors are used in mental diseases.

Research Projects

The Institute's research programme presently comprises 20 projects taken up on the basis of their relevance to the country's health problems and important medical and biological needs. Among these the projects assigned priority are (1) development of a single strain vaccine for cholera and typhoid (2) conversion of psychotrine to dehydroemetine and chemical modification of the structure for better activity (3) bulk isolation of glucagon from slaughter house waste and its regulatory role in carbohydrate metabolism (4) development of a fermentative method for the large scale production of methionine and (5) Biochemical Engineering : preparation of biochemicals from hospital wastes and agricultural products. Three of the Institute's extent projects fungal acid protcase, follow-up chemical investigation of Indian medicinal plants identified in the screening programme of CDRI and RRL, Jammu, and the experimental cultivation of Dioscorea yams of higher diosgenin content— were taken up under the auspices of the Co-ordination Council for the Biological Sciences Group of National Laboratories.

Reorientation of Programmes

During the past nine months much thought has been given to the reorientation of the Institute's research programme designed to achieve a threefold objective namely (a) producing an immediate impact on national programmes for the promotion of national health and rural welfare (b) concenoentrating the resources of scientific expertise available in the Institute on two or three multi-disciplinary projects with which most of the Institute's senior scientists could be associated and (c) ensuring that the Institute maintains a high standard of scientific excellence in its area of activity. The last mentioned objective implies also the need for encouraging collaborative work with University departments, research institutions and hospitals of established reputation, so that the Institute's scientists maintain rapport with the mainstream of scientific thought and progress in the country.

Accordingly a new project on enzyme engineering has already been started with finiancial support from the Department of Science and Technology. Four aspects are proposed to be investigated (a) Development of diagnostic aids based on the use of immobilized enzymes, e.g. glucose a oxidase stripes and immobilized ureas for the estimation of urea. In view of the simplicity of the technique it is ideally suited for use in rural health centres, and in urban areas will rednce the cost of diagnostic services. (b) Development of drug and enzyme delivery systems based on the use of liposomes incorporating glycolipids or antibody to cell-specific antigens on their surface so as to target them to particular cells which are diseased. Experiments already carried out in respect of liver cells support the feasibility of this approach. Such systems of drug delivery will help to improve the therapy of diseases like viral hepatitis and cancer, and also lower the cost of treatment of diseases for which satisfactory therapy is presently avaiable (c) Enzyme-linked immunoassay system for rapid diagnosis. This systeem would employ enzyme-labelled antibodies (in matrixbound form) to detect circulating soluble antigens and antibodies for the diagnosis of parasitic diseases like malaria, and filariasis, whose diagnosis present involves laborious procedures Similar systems are proposed to be deoloped for the detection of drugs and toxic substances also. (d) Development of single shot vaccine. In initial experiment it has been observed that injection of the enzyme invertase in free form does not cause antibody formation The research planned under the project on enzyme engineering brings together a number of disciplines already developed in the Institute, such as biochemistry, biophysics, chemistry, microbiology immunology, and pharmacology Collaboration is also envisaged with a number of outside research institutions like the Division of Biology and Medicine, BARC, Christian Medical College, Vellore and the Indian Institute of Science, Bangalore.

Therapeutic use

The work under the project on biochemical engieering has been formulated anew, again with the objectives stated earlier in view In the first phase of development of a laboratory in biochemical engineering, its work will relate to the development of R & D for the preparation of biochemicals required for biomedical research, and for diagnostic and therapeutic use, ultilizing expertise already available in the Institute. At present a number of biochemicals required for research (e.g. hyaluronic acid, N-acetyl neuraminic acid, concanavalin A, sepharose – concanavalin A, *Ricinus communis* lectin etc. are being marketed in the developed countries at exorbitant prices because of the high cost of raw materials and labour. The Institute proposes to take up the preparationof a number of biochemicals for which methodology has already been developed and develop methodology for selected products of research or therapeutic importance like neuraminidase, cholera enterotoxin, plasmin, HCG, placental enzymes,

asparaginase etc. The raw materials to be utilized will be mainly hos- wastes like umbilical cord, placenta agricultural products like *Canavalia ensiformis* and *Ricinus communis* and slaughter house wastes like pig blood. The programme has among its important aims the creation of self employment opportunities for fresh science graduates by training them in the utilisation of cheap wastes and natural materials for the preparation of biochemicals for the internal as as well as export markets. It is proposed that the products may be marketed through the CSIR Biochemicals Unit.

Another project that has been similarly reoriented and extended in scope relates to the study of mental retardation caused by inborn metabolic defects in the eastern part of the country. The aim is to study the pattern of incidence of genetically mediated mental retardation in this area, develop techniques of rapid diagnosis applicable to patients as well as at the prenatal stage and develop advisory health case service to help retarded children and also provide genetic counselling to expectant mothers whose offsrping may be at risk. The study covers genetic defects of amino acid, lipid and carbohydrate metabolism; on the clinical side the Bangur Institute of Neurology and the Departments of Pathology and Paediatrics of the Institute of Post Graduate Medical Education and Research, Calcutta are collaborating in the programme and on the investigative side, the Biochemistry Department of the IPGMER and two groups from the IIEM.

It is clear from recent trends that membrane structure and function will play a major role in the understanding of the processes involved in various diseases. Understanding of the membrane properties will lead to the development of newer drug delivery systems. In this one important work will be development of a programme on the chemistry of carbohydrates.

It is needless to add that the development of these programmes have to be synchronised with the development of various basic programmes: microbial genetics — to isolate enzymes for therapeutic purposes, biophysics — for physicochemical properties of membrane and interaction of macromoles, development of basic programmes particularly for carbohydrate chemistry. Isolation and identification of natural products of therapeutic importance with reference to drug delivery system, development of experimental pharmacology for assessment of various aspects of drug delivery system needs to be strengthened to cope up with the development in the applied aspects.

Research Utilisation

One of the problems facing an Institute like this is the utilisation of the results of research. In case the clinician has to corroborate the results of our experiments conducted on animals. The industrialist has to exploit the processes we develop. We have therefore to maintain rapport with the clinician as well as with the industry in order that our results may find meaningful application.

Multidisciplinary biomedical research is progressing at such a fast rate, that it is not possible for one organisation to collect all relevant information on the different disciplines. As such we have been feeling the need for proper collaboration with other medical and research institutions we can not only supplement the range of expertise required for our work and also for a central organisation that could satisfy our needs for up-to-the minute information on the variegated facets of our research work. □

standing up to the acid test...
of time

Prevention and Cure

THE CENTRAL Drug Research Institute, Lucknow, the seventh in the chain of national laboratories under the Council of Scientific and Industrial Research, was set up in 1951. The Institute helps the pharmaceutical industry and research institutions in the form of technical consultancy, dissemination of information on drug research and production and training of research workers in the disciplines concerned with drug research and in modern instrumentation techniques. Its research divisions comprise medicinal chemistry, biochemistry, biophysics, endocrinology, pharmacology including clinical pharmacology microbiology, parasitology, virology, experimental medicine and toxicology, biopharmaceutics, fermentation technology and process development.

Appropriate infra-structural facilities have been built up to provide the necessary logistic support to R & D. The specialised library has a stock of over 26,000 bound volumes of books and journals and subscribes to 476 Indian and foreign journals. This and the attached patents inspection centre constitute the nucleus of the information centre for drugs and pharmaceuticals. A modern animal house with breeding facilities stocks over 25,000 laboratory animals belonging to over a dozen species, both native and exotic, and includes a primate colony. The regional sophisticated instruments centre partly supported by the Department of Science and Technology, has facilities for physicochemical measurements like mass and nmr spectroscopy, elemental analysis, polarimetry, gas-liquid chromatography, atomic absorption spectrometry, radio-isotope counting and electron microscopy. The Biometry and Statistics Unit provides statistical analysis of data and helps in design of experiments. An industrial liaison group maintains close collaboration with the pharmaceutical industry and R & D organisations.

Other ancillary services are a workshop, instrument repair and maintenance section, glass blowing and photography.

The number of research scientists is about 175, supported by an adequate complement of technical personnel; the total staff is about 800. The Institute is supported mainly by the CSIR. The total budget for 1976-77 was Rs. 130 lakh.

Development of technology for translation to industrial production comes under the areas of (i) process development, and (ii) fermentation technology

The new drug development programme is particularly oriented to the discovery of better drugs and immunoprophylactics for tropical diseases in the areas of amoebiasis, parasitic infections like filariasis, malaria and helminth, and cholera. Other disease areas of interest are viral infections, cancer, disorders of the cardiovascular and nervous systems, and carbohydrate and lipid metabolism disorders.

Control of fertility is an important area; a multipronged approach is being followed which includes development of post-coital pills, local contraceptive devices, contraceptives for the male and tubal and vasal occluding agents

Investigation of medicinal plants and herbal remedies reputed in Ayurvedic and Unani medicine with a view to incorporating effective drugs into modern therapeutics is another long-term project. Survey of marine flora and fauna as a source of biologically active compounds is an extension of these studies

In each of these areas, besides the applied projects, there is a component of oriented basic studies which are essential for providing leads for applied work.

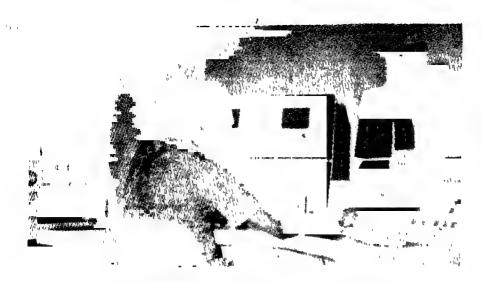
Process know-how for about 6 processes have been passed on to various firms for commercialisatiom. These include synthetic drugs like indomethacin, amitryptiline, destropropoxyphene, thiacetazone, paracetomol, dapsone, dexamphetamine, methylamphetamine, lidocaine; drug intermediates like dimethylbenzimidazole and levulinic acid; biologicals like peptone and pepsin; and fermentation chemicals like l-ephedrine, polymyxin; and plant products like l-dopa and psoralen.

The Institute acts as technical consultant to some public and private sector firms. Based on a project report prepared by the Institute, the U.P. government and the Indian Drugs and Pharmaceuticals Ltd. are jointly setting up a pharmaceutical manufacturing unit in the public sector. Project reports submitted by entrepreneurs to financing organisations are examined for their technical feasibility.

A new antithyroid drug has been developed which is useful in the treatment of hyperthyroidism and has some advantage over the presently used drug; it is expected to be marketed shortly. A new local anaesthetic agent is in the final stages of clinical trial at a number of medical colleges and hospitals. An anti-anxiety agent is also undergoing multi-centric clinical trials. Other potential drugs under clinical trial are: an anti-tapeworm agent which is better than currently used ones in that it kills and expels the whole worm, thus preventing reinfection; an anti-filarial which is more potent than diethylcarbamazine, the drug now in use; a hypotensive; an anti-depressant; and a neuroleptic.

A post-coital contraceptive having minimal side effects is undergoing extensive trials under the auspices of the Indian Council of Medical Research It is a nonsteriodal compound and is being tried both as a single dose post-coital pill and as a pro-phylactic given once a week. The results obtained till now indicate good protection against pregnancy.

The saponins of *sapindus mukorossi* (soapnut, "ritha") have been found to have spermicidal property; they have been used in making a contraceptive cream for intravaginal application. This cream is much cheaper than those based on imported ingredients. An imported device known as laminaria tent is required for dilating the cervix for medical termination of pregnancy, a cheap and efficient cervical dialator has been develoed using the husk of *plantago ovata* ("isabgol"). an indigenous plant; in preliminary trials the device has shown encouraging results.

Over 2,100 medicinal plants and a number of Ayurvedic and Unani remedies have been evaluated in order to verify their claims; about 100 plants or remedies have shown biological activity in preliminary tests, particularly anticancer activity, and these are under detailed study. Two promising products have

Electron Microscope - A modern tool in biochemical research

reached the stage of clinical trial· these are a cholesterol-reducing agent from the resin of "guggul" (*commiphora mukul*) and an anti-inflammatory agent, curcumin, from "haldi" (curcuma longa) A cardiotonic, asclepin, from *asclepia curassavica* is also under investiga-

A major problem in control of filariasis is the difficulty of quick and early diagnosis. A simple and rapid immuno-diagnostic skin test has been developed using an antigen made from the human filarial para site, *berugia malayi*, the test is specific and useful for diagnosis at a very early stage, thus facilitating treatment.

Since the clinical dose of the antifilarial drug, diethylcarbamazine, is associated with adverse side-effects, prolonged administration of a low sub-clinical dose was tried and found to eliminate or bring down the number of circulating mixrofilariae in the blood of patients to a level too low for further transmission through mosquitoes. It has been suggested that regular use of common salt containing 0.2 per cent of the drug with the food, for 11 weeks, by the population in endemic acreas could be a suitable method for chemoprophylaxis and control of filariasis.

Based on the observation that a single injection of cadmium chloride solution can destroy the ovaries without causing any other damage, and thus cause sterilisation, an instrument has been designed for intraovarian injection which provides a rapid, simple and inexpensive method for sterilizing useless scrub cows.

Basic studies

Studies on physiology of reproduction are oriented towards elucidating the nature of the biochemical milieu of the fallopian tube and uterus, regional differences in the physiology of the tube and its role in ovum transport and the effect of hormones on biochemical events preceding and following implantation. Considerable work has been done on the mode of action of currently used contraceptives and the IUD. The latter appears to produce changes in the biochemical parameters of the uterine fluid which becomes hostile to the pre-implantation blastocyst A number of antispermatogenic agents appear to act primarily by interfering with the energy producing system and secondarily with protein synthesis and steroidogenesis in the testicular fluid and seminiferous tubules Long-term studies in rats and dogs on the effect of vasectomy revealed the absence of any untoward effects on gametogenic and endocrine function of testis

Amoebiasis is a major health problem of the tropics. Emphasis has been on understanding the phenomena of excystment and encystment of amoebae and virulence of *E. histolytica*. Aqueous extracts of several bacteria and fungi particularly *E Coli* and *aerobacter aerogenes*,and of certain amino acids were found to promote excystment of *schizopyrenus russelli* and *hartmannella culbertsoni*. Thrity two bacteria were found to induce enxcystation of *'entamoeba invadens* and *E. moshkovskii* under anerobic conditions. Some evidence has been obtained that cyclic AMP triggers the process of encystment in *H. culbertsoni*. It has been shown that a low negative redox potential is very important for axenic growth and that a low concentration of L-cysteine hydrochloride produces a stable negative potential. Cholesterol has been implicated as one of the factors inducing virulence. Strains from human "carriers" originally a virulen to rats could be made as virulent as strains from human acute cases by feeding amoebae with cholesterol in culture and this virulence could be maintained by passage through rat caecum. A system of classification of amoebae has been developed based on nuclear division and other stable characters and possible phylogenetic relationships Some light has been thrown on the epidemiology of *naegleria aerobia* infection which causes fatal human meningoencephalitis.

The novel observation that the Indian jungle crow harbours a natural filarial infection, which has been named *chandlerella hawkingii*, provided a model for studies on microfilarial periodicity and immunity. The migration of microfilariae to and from the lungs in jungle crow was found to be due to alterations in the body temperature of the host and the concentration of carbon dioxide in the inhaled air.

Viral Diseases

In the field of virus diseases attention is focussed on interferons as these cellular proteins are implicated in the defence mechanisms of humans and animals. Ranikhet disease virus, live or irradiated with *uv* light, could induce formation of high titre interferon in mice, rats, fowls, humans and cell cultures. An interesting observation was that induction of interferon by RDV in tumour-bearing rats resulted in an increased lag phase of WM 256 tumour growth. Chick interferon has been found to inhibit endo and exo-toxin formation in cultures of *sal. typhimurium* and *clostridium welchii* respectively without altering their biochemical properties which would suggest that microbial pathogenicity is from virus-like factors

In the area of central nervous system and cardiovascular disorders, considerable work has been done on the synthesis and pharmacological evaluation of a diverse variety of heterocyclic structures This study has enlarged our understanding of structure-activity relationships and of the nature of receptors involved. Basic studies have been carried out on the elucidation of neural mechanisms and central and peripheral regulation of cardiovascular activity. It has been shown that adrenergic influences have an excitatory effect on central cardiovascular loci. Dopaminergic mechanisms have been found to be involved in apomorphine-induced

stereotype in guinea pigs but not in pigeons. Dopamine also appears to play an important role in the analgesic effect of morphine.

The effect of Mg^{++} on heart has been studied and it has been shown that there is significant reduction in ECG voltage in animals kept on a Mg deficient diet and this could be correlated with disruption of oxidative phosphorylation in myocardial mitochondria. *In vitro* studies suggest a direct effect of Mg^{++} on contractibility of cardiac muscle independent of Ca^{++}. High Mg^{++} level was shown to inhibit acetylcholine release.

Understanding the pathogenesis of atherosclerosis and its relation to hypertension is important for the study of disorders of lipid metabolism. The significant role of catecholamines in experimental atherosclerosis has been shown.

Future Programmes and Perspectives

The present objectives of the Institute, namely the development of new therapeutic agents for commonly prevalent diseases,providing aid to the pharmaceutical industry by development of technology, and better utilisation of indigenous plant resources will continue to be the major areas of thrust. For treatment of tropical diseases and regulation of fertility, an immunological approach will be more practicable in our country for logistic reasons. Efforts are being made to establish immunology as a discipline for development of immuno-prophylactic and diagnostic agents.

The recurrence of malaria has necessitated initiation of work on its chemotherapy, chemoprophylaxis and immunoprophylaxis.

Presently used cholera vaccines do not provide satisfactory immunity. The work on development of a better vaccine using hybrid strains of cholera vibrios produced by application of modern genetic techniques has been strengthened.

In view of the extensive use of indigenous remedies particularly in rural areas and by the lower income groups and the need for providing medical relief at low cost, the work on medicinal plants will continue In addition, evaluation of the efficacy and safety of Ayurvedic and Unani drugs, in the form in which they are used in these systems, will be carried out according to acceptable scientific criteria.

The role of chance discoveries in development of new drugs is being replaced by a greater degree of rational planning in design of potential drug molecules. The extent of success of this approach is connected with an understanding of pathological processes at the molecular level and more precise information about the nature od drug-receptor interactions. Basic research to understand the biocmistry and pathology of the disease trocess as also the study of quantiative structure-activity relationship are, therefore, becoming more and more relevant and stress is, therefore, necessary on such studies.

Biological screening models will have to be improved and during coming years suitable *in vitro* techniques will have to be developed, including cell culture lines, to enable more rapid screening. Suitable animal models for several disorders where such test systems are not available have to be developed.

Development of long-acting drugs would greatly reduce the frequency of administration and thus help in improving the effectiveness of prophylactic and curative health programmes. Attention will be given to delivery systems which would increase the half-life of drugs and also direct them to specific sites in the body where they are required.

Microbiological techniques for modifying the structures of compounds offer scope for obtaining useful drugs or other chemicals and greater stress would be given to basic work in applied microbiology. ☐

National Physical Laboratory

A.R. VERMA

NATIONAL PHYSICAL Laboratory is one of the first laboratories set up by the SIR. During the last decade sufficient emphasis was laid on applied search and development projects. stead of selecting short term pro- its, the research programme of e laboratory entails development of new technologies keeping view the futuristic needs of the untry. However, short term pro- its sponsored by the industry are dertaken. Know-how has been veloped and released for more an 70 new products/processes to e industries for indigenous pro- ction Production worth Rupees o crores is carried out annually the NPL licencees.

The main objectives of the Labotory are :

1. Custody, development and maintenance of the national standards of measurement at internationally accepted accuracy, and research on standards and on new techniques of measurement;
2. Periodic calibration of standards of measuring instruments and equipment used by various Government and other testing authorities, industries, defence, against national standards, and supply of standards to various agencies;
3. Calibration of instruments and testing of industrial products and appliances for performance, life and for effect of environmental conditions;
4. Maintenance of library of standard reference materials including characterisation of materials for purity, perfection and physical properties,
5. To undertake applied research, design and development work in physics oriented technologies with a view to improve, adapt, and develop indigenous and imported tecnologies. These areas include solid state and electronic materials such as semiconducting, magnetic, peizoelectric, ferroelectric, electron-optical and luminescent types and their devices; microwave components, circuits, sub-systems and instruments; thin and thick films; reprographic, display, control & measuring instruments; cryogenics and super-conductivity; vacuum technology; high pressure technology; carbon technology; and glass equipments and apparatus.
   To undertake work on systems planning and performance on special national efforts falling within the scope of the laboratory.
6. To undertake basic research in standards, radio science and in areas of applied research and development indicated in 5 above and in emerging areas of physics.
7. Technical advisory services, information, extension, consultancy and training, and collaboration with universities and other organisations.

Standards of Physical Measurement

NPL is the custodian of the National Standards of physical measurement for base units such as of mass, length and time, as well as derived standards for force pressure, etc Sustained efforts are made to improve the accuracy of the existing standards, and to evolve new ones. The laboratory has initiated research programme to establish national standards of measurement in terms of quantum phenomena with a view to keeping pace with the international trend. Efforts are being made to set up the standards of length measurement in terms of the wavelength of light radiation emitted by krypton-86 and stabilized helium neon gas laser and to set up voltage standard using Josephson effect. Stabilised He-Ne lasers have been developed for this purpose Cesium beam standard has been set up to improve the accuracy of time and frequency standard from 1 in 10^{8} to 1 in 10^{11}. An interchangeable pan balance of 1 kg, sensitive to measure mass to an accuracy of 0.05 mg has been designed with the ultimate aim of acquiring the highest accuracy – a few parts in 10^{9}. Work is in progress to improve the accuracy of these standards further.

The laboratory has set up stan-

r Verma is Director, NPL, New elhi.

ards for derived units, such as radiometric standards, spectroradiometric standard, of voltage standard, microwave power and impedance standards, and vaccum standard. An ultra-high vacuum set up to record a vacuum of the order of 10⁻⁹ torr has been established and efforts are being made to assemble a unit which may record vacuum upto 10^{-11} torr.

New Programme

Laboratory has drawn up a ten-year programme for establishing and maintaining standards for various electronic parameters covering all frequency ranges from DC to microwaves Force standard is being set up to calibrate force measuring instruments upto 1 MN (100 tonnes dead weight machine).

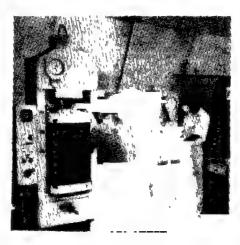
Calibration and testing of industrial products, instruments and prototypes according to the IS specifications as well as other specifications is a continuing activity of NPL. Voltmeters, ammeters, wattmeters, insulation testers, resistance bridges, klystron power supply attenuators and frequency meters and vacuum gauges are calibrated Testing of products like fuse units ballasts, air-break switches, voltage stabilizers, motors, cables, ceiling fans, plastic materials, conduit pipes, helmets, power cables and microwave components is undertaken. More than 2500 test reports were issued

Sophisticated methods like X-ray spectroscopy and diffractometry, electron microscopy, Mossbauer spectroscopy, long topography, EPR ESR, and atomic absorption spectrometry are employed to investigate the materials and the nature of impurities. The laboratory provides such facilities to industries and research organisations for the development of newer materials used in electronic devices. It is proposed to set up a library of standard reference materials.

The laboratory also undertakes the design and development of test equipment to test specific products according to IS and other specifications Consultancy services are rendered to set up quality control labs. in the industries.

Problems arising out of the rapid advancement of the electronics industry receive the attention of the laboratory. A Test, Evaluation & Calibration Centre to undertake environmental and life tests on electronic and electrical components and systems has been set up.

The performance of various components, equipment and systems is based essentially on the quality of the materials used for their manufacture. NPL has made considerable efforts to develop new materials like Nickel-Zinc ferrites, low frequency ferrites, square loop ferrites, Manganese-Zinc ferrites, dielectric and piezoelectirc materials, semi-conductor-grade silicon, phosphors, high-value composition resistors, thermoelectric materials, conducting silver cements, electro-optic materials, and gamma ferric oxide. Programme has been undertaken for the development of high permeability and high frequency ferrites, alumina ceramics, cathode insulators and transistor headors, high voltage capacitors for use in TV and other instruments. A pilot plant is being set up for the production of TV phosphors.

The laboratory has been making

Pilot plant to produce ferrite products

concerted efforts to create a strong base for the electronics industry. Processes have been developed for the manufacture of many electronic components such as silver mica capacitors, ceramic capacitors, hard and soft ferrite rods, and ceramic rods for carbon resistors. Ceramic capacitors are being produced by a number of firms utilising the NPL process. Research and development effort is continued with a view to improving the quality of products and at the same time reducing the cost of production. Knowhow has been developed for making liquid crystal devices (LCDs) for temperature measurement and display panels in electronics industry. Temperature senisitive LCDs help in reducing human suffering such as for the detection of tumors, cancer, leprosy, cold urticaria. These are also used for measurement of body temperature and family planning devices. Digital LCSs are used in wrist watches and electronic instruments.

In the field of carbon technology, expertise and infrastructure is available to develop any carbon product. A family of products like brushes and blocks, cinema arc carbons, process and search light carbons, midget electrodes have been developed and these are being commercially produced. Present production of cinema arc carbons alone is about one crore of rupees in 1976-77 and it is likely to exponentially grow to 2 crores in the next year. Knowhow is being released for the production of carbon thrust bearings, electrographite dynamo brushes, carbon granules for microphones. Work is in progress on the development of carbon fibres which will find use as re-inforcement material in making silos, fishing boats, corrosion free pipe lines, aircrafts and space vehicles.

The laboratory is also working on the development of ultrasonic instruments. Instruments and devices developed by NPL include ultrasonic interferometer for velocity measurement in liquids, ultrasonic transducers for remote control and automation, probes, linear displacement transducers and flaw detectors

The laboratory undertakes applied/developmental research in various fields to develop such technologies as may serve the immediate as well as the future needs of the country. Development of the electrostatic photocopying machine is an example of the laboratory's efforts in this direction Few thousand indigenous machines have been marketed saving crores of rupees in foreign exchange. An automatic photocopying machine is being developed. An electrofax type of photocopying machine has also been developed and knowhow is available for commercial exploitation. Knowhow for X-,XN – K –, S – and KU – band of microwave components has been successfully developed and the knowhow is being commercially utilized by three firms.

NPL has perfected the techniques of fabrication and reconditioning of cathode ray tubes and television tubes. Cathode ray tubes of 5UPI and 5AQP31 type with acceleration voltages of 1500 and 3000 respectively, and suitable for general-purpose oscilloscope, and 23 cm, 30.5 cm and 41 cm television picture tubes have been batch-pro-

duced and knowhow transferred to industry and reconditioning facilities have been started by the licencees.

A large number of laboratory instruments like linear drive for Mossbauer spectrometer and infrared spectrometer and multipurpose solvent extractor have also been developed. A Lang camera for testing the perfection of single crystals, such as of silicon, and measurement of dislocation density is another example of NPL's efforts to keep pace with emerging technologies. The laboratory has developed Penning and Pirani vacuum gauges, vacuum leak detector and natphyl vacuuo meter.

Cryogenic Research

The laboratory undertakes research in the field of cryogenics. Cryogenic equipment finds increasing applications in key industries like steel, petro-chemicals, fertilisers metal working, food and fish preservation. Work undertaken by NPL on the development of air liquefier and metallic containers is intended to establish facilities in the area of cryogenics. Solid Co_2 generator, cryoprobes for eye surgery, metallic dewars and double-walled evacuated vessels of spun copper have been developed successfully. Work is in progress for the development of Liquid N_2 machines and dewars for the purposes of artificial insemination Country's requirement of cryogenic plants is estimated at Rs. 450 crores during the Fifth Five Year Plan Meterological and diffraction gratings of very high line density have been made and supplied to other organisation for strain analysis work. In the area of thin film technology, knowhow is available for interference filters, neutral density filters, anti-reflection coatings and cold mirrors and their production has been started in the laboratory.

A Research & Development programme has been initiated in the field of solar energy. A solar space heating system has been designed and installed at BHEL on the NPL design. The laboratory has developed efficient solar collectors. Work is in progress for the development of solar pump and power generators for harnessing of solar energy or rural applications.

The laboratory has one of the best glass technology workshops in the country. This workshop prepares complicated glass equipment for use in the laboratory as well as for outside research and industrial organisations.

A pilot and demonstration plant in hydrostatic extrusion and material synthesis is also being set up under the United Nations Development Programme. Knowhow has been developed for making single crystal synthetic diamonds for use by machine tool industry. Knowhow is now being transferred to industry. Import of diamonds is nearly Rs. one crore per annum and its demand is likely to grow with indigenous availability.

Extensive work has been done in areas lihe the thermionic constants of metals, X-ray crystallographic studies of some potentially useful chaleogenides asregards phase transformation and thermal expansion, mpolyty and pis dislocations, defect entres in alkali halide crystals, Mossbauer spectra and interferometry. Work is continuing on transport properties of dilute alloys at low temperature, dielectric properties of solids and liquid mixtures, perfection and growth of whisker crystals, diffusion of impurities in solids, and image formation under partially coherent illumination by using spatial frequency filters. Several basic problems arising out of the work connected with standards and testing and developmental projects are in progress. Thus, for example the problem of Josephson tunnelling, which eventually would be used as a voltage standard, is receiving the attention of NPL

The laboratory has a strong and internationally recognized activity with two major objectives:

1. To assist in the current and future needs of all radio communication systems in India – the conventional broadcasting, television, VHF and UHF communication, satellite communication and tropospheric propagation.
2. To use the observed radio propagation characteristics for remote sensing of the earth's near space environment.

The NPL provides major services to Indian Radio Traffic Organisations, to research laboratories and universities, and to the Defence Services in all areas of radio communication. Special studies are also undertaken by the laboratory on users' requests. These are for radio communication for specific routes and under specific conditions for erroneous bearing given by homing beacons in mountaneous terrains, on freak television propagation, and similar problems. In 1971, an Associate Regional Warning Centre (ARWC) was established as a part of the International Solar and Geophysical Disturbance network. It serves the Indian Subcontinent, the entire South East Asia, and on the west the entire Middle East. The laboratory broadcasts daily through All India Radio through its Standard Time and Frequency Service and through Indian Meterelogical Department the solar and geophysical conditions of interest to scientists and communication networks. In the field of space research, one area of current interest is the beacon observation of the Satellite ATS-6 which is providing TV transmission directly to village receivers in a programme known as 'SITE' The laboratory has participated effectively in the Indian experiments with Rockets flown from Thumba.

An important technique which explores the earth's ionosphere by using the radio noise from the galaxy and has since found major uses in many areas of geophysical activities is the Riometer. A matter of special importance is that this technique was partly an Indian discovery. The equipment operating in the NPL backyards is one of the longest continuously running equipment of this type in the world.

A new and a very powerful technique for sensing the lower atomosphere presently upto 500 metres has been established. This is an Acoustic Radar called the SODAR It uses pulsed sound waves around 1000 Hz. This system has important applications in:

1. Tropospheric Radio Communication,
2. Meteorology,
3. Detection of Atmospheric Pollution.

The laboratory operates an extensive system of radio flare patrol using a wide variety of techniques.

NCL in Rural Development

H.B. SINGH
and
A.M. LELE

THE NATIONAL Chemical Laboratory (NCL) in Poona is the first of the national research laboratories and institutes set up by the Council of Scientific and Industrial Research (CSIR) New Delhi. Started in 1950, it is playing a part in the development of villages.

The work is done in the following 13 areas of industrial importance: petrochemicals and bulk organic chemicals; pesticides and agro-chemicals; drugs, dyestuffs and fine chemicals; organic intermediates; utilisation of plant, forest and marine products; industrial polymers, elastomers and resins; mineral resources utilisation; industrial inorganic and organometallic chemistry; solid state materials including materials for electronic industry; plant and animal tissue culture; fermentation technology; enzyme technology; and development of instruments.

The research work at NCL is recorded in 3,000 publications in India and foreign journals Nearly 50 patents are currently in force. Five NCL scientists have won the coveted Sir Shanti Swarup Bhatnager award and four have won the K.G. Nayak Gold Medal (awarded by M.S. University, Baroda) for contributions to industrial research. Several members of NCL staff are Fellows of Indian National Science Academy, the Indian Academy of Sciences and the Maharashtra Academy of Sciences.

Agriculture and Health

During the last decade, NCL's endeavour has been to promote self-reliance in much needed technology in several priority sectors such as health, agriculture and defence. Several technologies have been successfully developed in these areas.

Notable contributions towards development of pesticides technology are phenthoate and nicotine sulphate (from tobacco waste). Processes for dalapon and endosulfan have been released and are expected to be established soon. NCL technology is expected to be commercialised in the next few years for pentachloronitrobenzene, cycocel, maleic hydrazide, simazine, atrazine, nitrofen, tetradifon, carboxin, fenitrothion, dimethoate and ethephon. NCL has developed a new slow-release herbicide formulation which controls the growth of parthenium, an obnoxious weed. Other pesticides for which technology is under development are: paraquat, chlordane, imidan, phosvel, ethion, carbofuran and captafol. The total turnover of these pesticides and other agro-chemicals by 1980 is expected to be of the order of Rs 40 crore.

NCL has been successful in growing virus-free sugarcane and hybrid cabbage plants by the use of plant tissue culture technique. Extension of this technique towards rearing of newer and better varieties of food-grains (for example, wheat) by mutation and somatic hybridization is also under investigation. Studies in teak seed germination as well as attempts to propagate teak and rear medicinal plants such as dioscorea by plant tissue culture technique are under way

Large scale trials to test the efficacy of certain compounds in controlling loss of water due to evaporation are in progress with the collaboration of the Directorate of Irrigation Research and Development, Maharashtra State.

NCL has developed technologies for a number of drugs and pharmaceuticals (for example, opium alkaloids, vitamin C, and calcium hypophosphite) many of which are in production. Other pharamaceuticals and their intermediates in production are clofibrate, catechol, sorbitol, acriflavine, berberine hydrochloride, acrbide nitrate and carbimazole. The value of these drugs at capacity production is estimated to be Rs. six crore annually. In addition, NCL has also developed know-how for the following drugs: papaverine hydrochloride, xylit, phenoformin, metformin, diazepam, chlordiazepoxide, colchicine, theophylline, aminophylline and caffeine. Processes for the first five products have already been licensed to industry. NCL is presently engaged in developing technology for the following drugs: antrycide, tetramisol, naproxen, semi-synthetic penicillins etc.

Defence and Industry

NCL technology has been successfully exploited for dimethylaniline and monoethylaniline which are required in the production of tetryl and carbamite used in the manufacture of high explosives. Process technology for the production of sealants for aircraft and those required in atomic power plants are under development.

The polymer industry has made outstanding contributions to meet man's needs for new materials. NCL/'s success in this field has been quite significant. A 300 tonne per annum semi-commercial plant for nitrile rubber has gone on stream and a 2,000 tonne per annum plant with an estimated turnover of Rs. four crore has also been recently commissioned. Plants based on NCL technologies for the manufacture of ion exchange resins, adhesives, thermosetting resins, can sealing compounds, rigid filters, rubber blowing and reclaiming agents are already in production NCL is presently engaged in the development of technology of sulphochlorinated polyethylene, an important synthetic rubber possessing special properties.

Some of the organic intermediates now being commercially produced are acetanilide, chloromethanes, chlorobenzene, phthalate plasticizers, toluidines, monochloroacetic acid, nonylphenol, diethyl-m-aminophenol and ethylene oxide condensates. The value of production of the above items at rated capacity is estimated at Rs. 22 crore.

It is hoped that within the next two to three years, plants based on NCL technology will be established for aniline, P-cresol, ethylene diamine and morpholine. The value of output by these plants is estimated at about Rs. 15 crore.

NCL is presently engaged in the development of technology for the following intermediates petrochemicals; propylene oxide, acrylic esters, *o*-and *p*-aminophenol, *p* anisidines, butene-1, 4-diol, hexachlorocyclopentadiene, n-ethyl-*o* toluidine and pentachlorothiophenol.

Production of β-ionone, geraniol, citronellol and citronellal from Indian lemon grass and citronela oil has been established. Costly perfumery chemicals have been developed from low value by-products Δ³- carene and longifoline) of turpentine oil and are in commercial production. A plant for the production of oxalic acid from ain bark, a forest waste, has been established in Chandrapur in Maharashtra

Processes for the production of carbon tetrachloride and chloroform from waste methane gas, rubberised coir sheets from coir pith and cork wastes, sisal wax from sisal waste, nicotine sulphate from tobacco/tobacco waste, ion exchange resins, coating compositions and foundry core binder from cashewnut shell liquid, gums from cashewnut shells, and fructose from costus root lef tafter the extraction of oil are some examples of NCL's work in this area

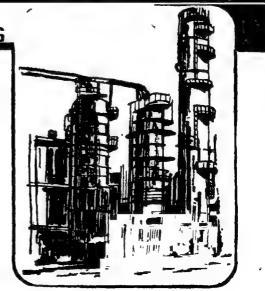
NCL has also developed a process for the production of rayon tyre cord and HMW grade pulp from hard and soft woods and is in a position to offer technology for a 100 200 tonne a day plant. It is also engaged in a major project for the conversion of cellulosic wastes into glucose, protein-rich cattle feed and compost.

India possesses rich mineral resources many of which have not been fully utilised. NCL has under taken several important developmental projects in this field. Plants for the production of calcium silicate and butyl titanate have been established. Work is in progress in collaboration with industry for the establishment of a semi-commercial plant for titanium tetrachloride and also for the development of technology for chlorosilanes, silicones and fumed silica starting from ferrosilicon. These products are presently being imported An innovative process for the benefication of ilmenite is also under development. These are also now being imported

An innovative cyclic process for the production of phosphatic fertilisers from Indian rock phosphate is under development. An innovative process for the manufacture of cryolite from fluorine-bearing gases has been developed in collaboration with industry.

NCL has developed technologies for thermistore, photocells, ferrites and a few sophisticated ar lytical instruments which w hitherto imported. Plants for t production of these items have be established. Work has also be undertaken for the development materials and devices useful for t utilisation of solar energy as p of a major CSIR effort on tl nationally important R&D prc ramme.

In accordance with the CSI policy of adoption of backward d tricts in the country for integrat development using science a technology, the NCL, in collabo tion with the Maharashtra Gover ment, has been involved in the p paration of an eco-system plan f the development of Chandrapu This document marks a deparatu from the normal approach of se toral development. The empha in the planning strategy here is using science as a conscious a deliberate tool for econom growth without detriment to e vironment. The eco-system pla also keeps the rural poor as t focal point for development. A tempts will be made to improve t life styles and purchasing power the rural population □

HERALDS OF NEW ERA—3

Strides By CLRI

THE CENTRAL Leather Research Institute at Madras, set up in 1953 is engaged in fourteen main areas of R&D, namely, raw hides, skins and microbiology, animal wastes and slaughter house byproducts; collagen; tanning and mechanism of tannages; leather auxiliaries; polymers; tanning and finishing; footwear and leather goods; tannery effluent and environmental biology; extension; technical training; leather trades engineering; economics and information

The task of transfer of technology is complex since the industry is age-old and exists at different levels, village, small, middle and large scale sectors whose interests are often conflicting. Over the years, appropriate technology has been developed and transferred to the cottage, small and middle sectors.

Impressive Achievements

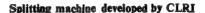
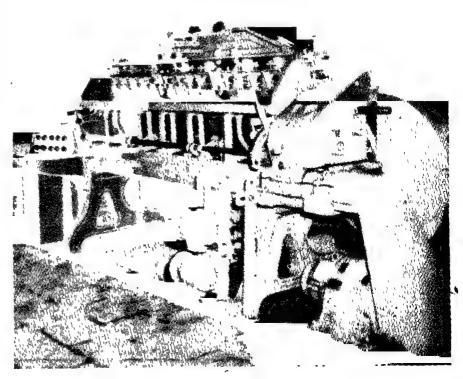
As a result speciality of leather items like pickers, picking band straps and all other industrial leathers for textile, jute and silk mills, which were imported formerly, are now made by the Indian leather industry. Vegetable tanning materials and some chemicals and machinery items specifically used in leather tanning and finishing were formerly being met exclusively from import Today the industry is using more of the indigenous materials which have proved equal and more than equal to imported goods The country has developed capacity to meet the local needs in full and also export some of the speciality leathers and tanning auxiliaries and tanning machinery Certain leatherware, for the exclusive use of the defence service personnel, formerly met from imports, are now made in the country. Technology transfer is effected through the base unit at Madras as well as through the five regional extension centres at Bombay, Calcutta, Jullundur, Kanpur and Rajkot. The special regional needs of the country are thus met.

At the time of the inauguration of this Institute in 1953, the value of leather and leather products in India was estimated at Rs. 45 crore and the corresponding figure today is Rs 580 crore. Leather and leather products worth about Rs. 27 crore were exported in 1953 and the value of current exports is in the neighbourhood of Rs. 313 crore. The composition of the exports has also been shifting from mainly raw hides and skins and semi-processed leathers to increasing finished leathers as well as sophisticated leathergoods Though it is difficult to assess the extent to which the Institute has contributed to this development, it has played a great part in the tremendous transformation that has come about in the structure of the industry. The Institute is providing know-how and technology for the manufacture of finished leathers, leather auxiliary chemicals and various types of machines required both for the tanning and leather-based industries.

In tangible terms the institute has developed so far about 200 processes and products and has demonstrated through its extension services about 500 processes to different sectors of the industry. It has published about 1,000 research papers and articles and has brought out over 100 techno-economic survey reports, project costings, market study reports and price studies.

Training Courses

The Institute is conducting training courses in various aspects that are of interest to the leather industry in our country in other developing countries. Trainees from Burma, Indonesia and West Asia, have often availed themselves of the facilities of training in this Institute. Scientists from the Institute have gone out to other countries to set up research institutes and to help the industry, for instance, in Sudan, Aden, Somalia, Iran, Nigeria, Nethantilles, Swaziland, Mali, Bolivia, Argentina and Yugoslavia. A unique feature of CLRI's activity is its collaboration with the University of Madras in training students for the Bachelor's,

Splitting machine developed by CLRI

master's and Doctorate degrees in leather technology.

In all about 1,500 students and trainees including those sponsored by the industry and trade and over 90 foreign students have gone through the portals of CLRI. More than 40 cottage tanners have received tailor-made simple leather processing techniques in the Institute.

The institute has today more than 50 organised firms under the retainer consultancy scheme. Annually, about 2,000 trade enquiries are attended to. The services of CLRI are offered on first come first served basis. The exception to this rule is the service offered to the rural sector, which is available whenever and wherever needed. This is free of cost

The Institute brings out technical monthly bulletins in English and Urdu and quarterly bulletins in Hindi and Marathi. The experts of the Institute serve on the ISI Committees, trade bodies, technical education committees and on export panels, constituted at the State or Central level from time to time to give the benefit of their technical views relating to leather and allied industries.

R&D Plans

The Government of India's present policy is that increasing quantities of finished leathers and leather products should be exported in place of the traditional export of semi-processed leathers which form the raw material for making finished leathers by the advanced countries. A target of Rs 600 crore worth of exports in the form of leathers and leather manufactures is to be reached by 1980. The R & D work involved will be considerable. One hundred and forty research problems, distributed over 13 major R & D areas of the Institute, which are of direct relevance to the current needs of the Indian leather and allied industries have been chalked up for research during 1977-78 and 1978-79.

In order that the R & D expertise available with the Institute in the fields of tanning, designing and fabrication of footwear, leather goods and leather garments, utilisation of tannery and carcass wastes, and treatment, control and use of tannery effluents may reach all sectors of the industry, an effective rapport is maintained by the Institute with organisations such as the Small Industries Service Institutes, Central Footwear Training Centres, the Khadi and Village Industries Commission and its regional boards and other science and technology laboratories. The Institute also maintains continuous liaison with technical and trade organisations abroad concerned with leather industries and forums of scientists and technologists devoted to R & D on leather and leather products in several developed and developing countries. □

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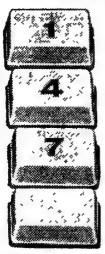
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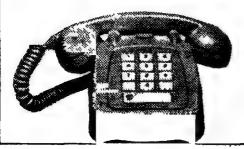
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Dattaram ITI-12D

Hops, Furs and Mushrooms

THE REGIONAL Research Laboratory, Jammu & Kashmir, a multi-disciplinary research organisation was established in 1958 to promote industrial growth in the north-western Himalayas by developing technologies based on raw materials available in the region It has fourteen Divisions. These are: Applied Botany, Organic Chemistry, Mineral Resources, Cellulose Pulp and Particle Boards, Food Technology, Chemical Engineering and Design, Leather and Fur Technology, Mycology and Plant Pathology, Pharmacology, Plant Collection, Survey and Herbarium, Applied Zoology, Industrial Survey, Central Instrumentation and Surface Coating The laboratory has a branch laboratory at Srinagar and an Extension Centre at Palampur (H P)

A thorough study of various industries and their needs is conducted as and when requests are received Once a problem has been properly identified, a team of scientists/ technologists is brought into play with a clear cut aim. A definite plan of action and time target for its completion are fixed During the various stages, the progress is evaluated by modern methods of management Research development and Design facilities are offered to industries needing these on a cost to cost basis.

Extraction of Borax

Borax is a strategic mineral and is extensively used in many industries including pharmaceuticals, glass and ceramic. India entirely imports this versatile chemical spending considerable foreign exchange. The one known deposit is located in Puga valley. Apart from the existing deposits annual replenishments are also about 550 tonnes of borax.

The Jammu laboratory has developed the technical know-how for extraction of borax from crude tincol ore available in the Puga valley. A one-tonne plant was installed by the laboratory. A novel feature of the plant is that it utilises geothermal energy for processing of crude borax The plant is solely designed, fabricated and commissioned by the scientists of this laboratory

The technical know-how had been given to J & K Minerals Ltd. for exploitation of crude ore since 1976. The party has already produced a good amount of refined borax and now intends to increase the capacity of the plant five-fold.

Chir pine needles are available in the forests in huge quantities. Every year these needles fall down from the pine trees and get dried up The dry needles pose a fire hazard to the forest and also inhibit the regeneration of new plants It is estimated that the annual fall in J & K and H.P alone is about 0 27 million tonnes. Presently these needles are not being put to any use This laboratory has developed processes for the manufacture of fibre board and pine wool from these needles The process developed for fibre board manufacture avoids depletion of valuable forest wood A two tonne a day plant based on know-how developed by the laboratory was set up by the H.P State Forest Corporation at Bilaspur. The unit went into operation in June, 1976 Fibre board produced can be used for making boxes, picture frames, panels, air bags, ceiling etc

The process for the production of pine wool has been released Pine wool can be used for stuffing material in mattresses, cushions and furniture and for packaging fragile articles

Dehydration of Apricots

Solar energy has successfully been harnessed for the dehydration of apricots in the Ladakh region of J&K Conventionally drying of apricots requires 25 to 30 days. The fruit gets decayed due to prolonged drying time. After studying the drying characteristics of apricots, a solar cabinet drier was designed and developed for speedy and hygienic dehydration of these fruits. This works on natural wind and solar energy. The operatio cost is negligible. The equipmen simple in construction and can fabricated even by village artis using indigenous raw materi Fruits that normally take 25 to days for drying in the open sun dried in just three days with marl improvement in product, qual and storage characteristics.

Twentytwo units were fabrica in 1976 and supplied to the farm to invoke their interest in the ap cation of this technology to th produce From the response units received and the enthusia of the farmers, it is expected that major portion of this crop will processed by solar dehydration.

Fur and Suede from Sheep Ski

Large quantities of sheep a goat skins are daily available a byproduct of slaughter houses the region. At present these sk are mostly sent out of this area raw condition in spite of the f that they could be utilised loca for making furs and suedes.

A full-fledged fur and wool te nology block equipped with mode machines and equipment has recen been set up in this laborato The R & D work has indicated t these skins can be converted i different grades of furs, fur sue and plains suedes suitable for in the fabrication of sleeping ba jackets, caps, cushions etc. Th products have been displayed traders to show the versatility finished furs and suedes.

Medicinal and Aromatic Plants

Seeds and planting materials ha been developed and passed to g wers for commercial cultivatic These are Ergot on Rye; M. pi rita; M citrata; M. arvensis; Jamı lemon grass, RRL-14; Eucalyp citriodora; Atropa belladonı Ammi majus; Solanum Khasian and Datura innoxia.

Cultivation of Hops

Hops is a material greatly in mand by the breweries of the coun and is imported to the tune of one crore annually. It has for t first time been established as a co mercial crop by this laboratory Kashmir. A number of brewer and farmers in Kashmir and H. have taken to its cultivation. W this rate of progres we may so hope to be self-sufficient in t hitherto entirely imported r material.

Tariners in Kashmir and Himachal have taken to Hop cultivation

Mushroom Industry in Kashmir

Mushrooms are fungi which belong to the lower forms of plant species. Their edible varieties are known to be very delicious. Unlike other cereals and vegetable crops, this culture needs a lot of care and expert handling at every stage of their growth They are grown in trays on suitable suastrates, seeded with specific spawns, in a room conditioned to previously determined range of temperature and humidity Substrates, the main constitutent of which are usually the agricultural waste materials like straw, constitute the soil and spawn, the seeds for mushroom cultivation.

With the efforts of this laboratory mushroom cultivation is a household affair in the valley. The programme has proved to be a boon to farmers and entrepreneurs.

Production of Diosgenin

One of the major achievements of this laboratory is the setting up of a chain of three plants for the commercial production of diosgenin from *Dioscorea deltioda* which is a steroidal sapogenin used as an intermediate in the manufacture of oral contraceptives, sex hormones etc. The combined production by the firms has been estimated at Rs. three crore.

The laboratory has developed *costus specious* rhizome as new raw material for diosgenin-starting material for the synthesis of sex hormones. At present the main source of diosgenin in India is *dioscorea deltoidea.* The supplies of this material are, however, limited. *Costus spceiosus,* occurring throughout the foot hills and plains of India, has been found to be an ideal supplementary source of diosgenin. Extensive surveys have been undertaken in all parts of the country to assess the resources A massive programme for chemical screening of thousands of rhizome samples obtained from various parts of India has been initiated. Multilocation cultivation trials have revealed the capacity of the plant to grow under different agroclimatic conditions Semilarge scale cultivation of this plant at Jammu offered about 13 tonnes of dry rhizomes per hectare yielding about 50 kg of diosgenin.

Progesterone is an important female sex hormone and is used as a remedy for abnormalities of menstrual cycle It is also widely employed in the maintenance of pregnancy.

Progesterone is a costly drug and, therefore, development of an indigenous process for its manufacture starting from diosgenin is quite economical There is also considerable export potential for this drug The process developed by this laboratory is facile and employs only indigenously available solvents, chemicals and equipments The overall yield is about 25 per cent of the weight of diosgenin.

A separate cell is being established as a demonstration unit for the entrepreneurs to get training in the production of 16-DPA and progesterone Progesterone produced is of USP grade

This process has already been released to two parties

Process for Citric acid

Citric acid is an important organic acid found naturally in citrus fruits. It is now being manufactured by a few multinational companies in the world by fermentation process. It is such a complicated process that most of the manufacturers have taken 20 to 25 years of extensive R & D work to develop this process India is importing citric acid worth one crore rupees a year. The demand is expected go to up. It was felt that the country should have an indigenous process for citric acid manufacture so as to be self reliant and independent of the foreign monopoly houses. Keeping this in view, a process ha been successfully developed on 400 lit. fermenter level. Complete know how of the process is being provided for setting up a plant with an initial capacity of about 400 tonne a year.

Menthol from Mint Oil

Production of menthol in India is the result of the efforts made by this laboratory in introducing *M arvensis* in this country and producing menthol crystals therefrom As the production has taken roots there has been accumulation of dementholized oil from which it is possible to obtain menthol crystals by the chemical process developed by this laboratory. During this period a small pilot plant has been set up for demonstrating the production of menthol from dementholised oil The process is sold to several entrepreneurs who are supplied with project report, giving full process details, design and drawing specifications of equipment The entrepreneurs have also been trained in the production techniques A process has also been developed to obtain holder crystals of menthol usually referred to as "Japanese crystals". Such large crystals have been produced for the first time in the country.

After establishing 'the credibility of technology of menthol production in the small scale sector in India, this laboratory has been asked to set up a pilot plant in Burma to manufacture 3000 kg. of menthol per annum. This is one of the ten pilot plants which India is gifting to Burma through the NRDC

The programme of the Laboratory for the coming two years includes. extraction of potash from the Tsokar lake in Ladakh, production of Citronellol, geraniol, gibberellic acid, ergot alkaloids and biomass by submerged culture, completion of clinical trials on the drug scoparone and developmental work on vasicine, developmental work on the utilisation of raw sheep skins into high quality simulatiosn and fine suedes and work on apple juice and apple juice concentrate. ...

"The supreme consideration is man

-Mahatma Gandhi

Mint, Lemongrass and Eucalyptus

G. THYAGARAJAN

THE REGIONAL Research Laboratory, Jorhat is one in the chain of laboratories under the Council of Scientific & Industrial Research. Established in 1959 the Laboratory seeks to put to effective use the immense material resources of this region, to develop the economy of the States, and to function as a link between the state organisations and other national laboratories in solving problems requiring specialised attention, undertakes R&D activities for effective utilisation of minerals, agricultural and agro-industrial wastes, forest and energy resources of this region; works on introduction, acclimatisation, propagation and improvement of medicinal and other economic plants RRL-Jorhat also provides scientific and technological inputs for the industrial and economic development of the region in particular and the country as a whole by way of offering consultancy services, analytical and testing facilities, fabrication of plants, special equipment and pilot-plant facilities. The laboratory accepts ad-hoc research projects sponsored by industries and renders all possible help in transferring the technology generated in the laboratory The areas in which the Laboratory is now working are:Applied Civil Engineering, Analytical services, Biochemistry, Chemical Engineering, Coal, General Engineering, Geoscience, Inorganic Chemistry, Medicinal and Economic Plants, Organic Chemistry, Papers and Boards and Petroleum and Natural Gas.

Some of the important achievements made by the multidiscipline Laboratory during the last decade are given below:

Phyto-chemicals

The North Eastern Region consisting of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura is very rich in medicinal, essential oil bearing and other economic plants, so essential for our plant based chemical industries. The Laboratory has taken up extensive research for development of know-how for the cultivation of essential oil bearing plants like Basil, *Citronella, Eucalyptus citriodora,* Japanese mint, Lemon grass, Palmarosa and Pepermint. Essential oils are mostly used in perfumery, pharmaceuticals and cosmetic industries. Although some oils are produced in the country, there is a widening gap between the demand and production also. The Laboratory has made much headway in popularising the cultivation of the oil bearing plants in this part of the country With the help of Laboratory's know how and planting materials about 6000 acres of land have been brought under the cultivation of citronella by the farmers in this region. As the indigenous production of citronella oil is now adequate, the Government of India has totally banned the import of citronella oil from abroad This Laboratory has also developed a process to fractionate this oil into citronellol, citronellal, geraniol and other higher value products having export potential Besides citronella oil, know-how and planting material for cultivation of *Mentha arvensis, N Piprtiys,* Pilmarosa, *Euvalyptus citriodora* and lemon grass have been provided to a number of entrepreneurs. The Laboratory has studied the possibilities of establishing a lemon grass oil industry in Lumla area based on the grass, growing naturally in that region. The Laboratory has supplied the Arunachal Pradesh Administration a distillation still for extraction of lemon grass oil. Training has been imparted to some local people for the cultivation and distillation of lemon grass. A good number of distillation stills for extraction of essential oils have been provided to a number of other parties. Besides essential oil bearing plants, know-how for cultivation of medicinal plants such as Dioscorea sps. Solanum sps. etc. and extraction of active principle therefrom have been developed in this Laboratory. The tuber of diocorea yields diosgenin. The berries of *Solanum khasjanum* contains solasodine· Both diosgenin and solasodine serve as source for 16-DPA, a starting material for storoids. A number of parties in Assam are taking up large scale cultivation of the *Solanum khasianum* under the technical guidance of this Laboratory. Experimental cultivation of Dioscorea is being taken up by the Laboratory at Tripura and *Solanum khasianum* in Mikir Hills under the auspices of Assam Hills Development Corporation. Besides research activities relating to introduction, acclimatisation, ropagation and improvement of some other economic plants such as Costus sps, Pyrethrum, *Valerium Eallichu* etc. are in progress On large scale exploitation of the know-how developed in this Laboratory, a N.E. India may provide a rich base for various phyto-chemicals for which there is a great demand in the country

Drugs and Pharmaceuticals

The Laboratory has developed the technology for manufacture of caffeie caffeine from tea waste. Caffeine is an important drug and the current total requirement of this drug is about 100 TRA and the estimated

Carbon black is extensively used by rubber and tyre industries

Dr Thyagarajan is Director, RRL, Jorhat.

demand of caffeine by 1978-79 is about 160 tonnes Caffeine is also used for making the phylline, and aminophylline, two other important drugs. Based on the know-how developed at RRL, a firm at Jorhat is producing about 90 kg of caffeine per day. It is estimated that if all the tea waste available in the country is funnelled into production of caffeine, about 200 TRA of caffeine could be manufactured in the country, which will not only meet the domestic demand but also enable the country to export the surplus caffeine. Processes have been also developed for theophylline, choline chloride, p acetamel, phenylbutazone and diethylamino-ethanol. These processes have been licensed to a number of parties

Pesticides and Agro-Chemicals

Pesticides and agro-chemicals occupy a key position in increasing our food production The country spends a substantial amount in foreign exchange for importing basic pesticides as well as the formulations The Laboratory has been working on development of process know-how for organophosphorus pesticides such as phosphomidon, quinalphos and chlorovenvinphos based on indigenously available chemicals The work on quinalphos and phosphomidon are in advanced stages of development. A number of firms are showing keen interest in the exploitation of this know-how

Organic Chemicals

Processes for making oxalic acid from saw dust/molasses, tertaric acid from tamarind leaves, Dinitroso-pentamethylene tatramine (D.P.T.), furfural, Diphenyl and tri-n-butyl phosphate are in various stages of development. The technology on oxalic acid, tartaric acid and furfural have already been transferred to parties for exploitation and the process for making D.P.T. is in commercial producion

Petroleum and Petrochemicals

Petroleum wastes are being utilised by the Laboratory for making valuable waxes. One such process which is being exploited by industry is microcrystalline wax from sucker-rod wax, wax scrapping and tank bottom sludge. Microcrystalline wax is used in making carbon paper, grease and water-proof coatings, match, adhesive etc. The other process which is under implementation is regeneration of used lubricating oil. Work on development of making Dibenzyl disulphide, thymol and diphenyl are in progress. Work is being continued for preparation of a product having fire resisting properties out of aromex, a waste material of oil refineries. The Regional Research Laboratory has developed a flow improver from totally indigenous raw materials, which on incorporation in small doses can make the high waxy crudes amenable to piping. This technique will be the most economical way of transportation of crudes from production site to refinery

Resin Plasticisers & Plastics

Considerable amount of R&D work has been done for development of process know-how for moulding powder from agro-industrial wastes, lamination of boards using indigenous materials, triphanyl and tricresyl phosphates – two important plasticisers. These technologies have already been transferred and the last two processes are in commercial production.

Industrial Inorganic Chemicals

Aluminium sulphate, Silica gel, Silica sol, Potassium silicate, Sodium hydrosulphide are a few of the important inorganic chemicals developed in the Laboratory. Aluminium sulphate is flocculating agent finding use in water purification, and paper and textile industries Conventionally it is made from bauxite. The RRL-Jorhat process is based on alumina-rich clay available in some parts of N.E India. Sodium and/or Potassium Silicate, can be had as by products of this industry. Silica gel is an important chemical which is used as descicant and Slica sol is used in textile, ceramic and chemical industries The process developed at RRL yields about 99.9% pure Silca gel. Based on the Laboratory's know-how a number of parties are manufacturing Silica gel commercially. RRL-Jorhat has also developed a dispersant agent for effecting suspension of clay materials present in iron ore fines and also for beneficiation of certain other minerals. Process has been also developed successfully in this Laboratory for making cold bonded iron-ore pellets using a binder. Work on utilisation of paddy husk for making useful products such as refractory brick, Sodium Silicate, Active Silica, Silica pozzolona and molecular sieves is in progress.

Coal and Related Products

The N.E. region of India has abundant coal resources. But due to the inherent characteristics like high-sulphur content have no rightful uses. The Laboratory has been working to diversify the use of these coals. A process has already been developed for making carbon black from Assam coal Carbon black finds extensive use in rubber and tyre industries and there is great demand for this product in this country. The conventional raw-materials for Carbon black are oil, tar or gas wich are scarce and costly. Besides Carbon Black, the RRL-Jorhat process yields high temperature char as by-product. The process will make best use of Assam coal in terms of valorisation of the raw material to higher value product, diversify the use of Assam coal and conserve a substantial quantity of foreign exchange required for import of Carbon black. The process offers attractive yield and good product specifications and has recently been licensed. The Laboratroy also developed the know-how for making channel grade Carbon black from naturalgas at the instance of ONGC Laboratory scale investigations for desulphurisation of high sulphur oil has been completed Fluidised bed combustion of coal is getting much importance in recent years in view of the present energy crisis The Laboratory has been working for development of the technology for combustion of high sulphur coal of Assam in fluidised bed to generate thermal energy and simultaneously abate the air pollution by arresting the sulphurous gases Bharat Heavy Electricals Ltd, is collaborating in this work

Bio-Chemicals

India imports sufficient quantity of fermentation products. Countries like Japan have made much headway for manufacture of most of the product through fermentation technology Jorhat Laboratory has built up the necessary infrastructure for carrying out R&D work in this area Processes relating to production of active dry bakers, yeast, pharmaceutical grade yeast from molasses and Bromelain, a proteolytic enzyme from pine-apple waste have already been made available for commercial exploitation. Work is continuing to develop processes know-how for industrial enzymes and micrabial fats.

Building Materials

In collaboration with Central Building Research Institute, RRL-Jorhat has developed a process for

production of corrugated roofing sheets (Paper board) for low cost houses. These sheets are water and fire resistant and are suitable for temporary low cost houses. The life of the boards is 10-12 years and the cost of production about a rupee per square foot. Processes for making building bricks and cement like products from paddy husk have been worked out. Know-how for making boards out of paddy husk has been developed. The Laboratory has worked out a formulation using indigenous raw materials which can be used as an additive for oil well cement. Extensive experiments carried out both in Laboratory and field conditions are giving encouraging results. This additive can substitute the one which is being imported into the country at substancial cost. The process has already been licensed

A vertical shaft kiln process for manufacture of portland cement has been evolved The process is highly versatile and the components are available in the country. This process has been licensed to a firm in Kutch which will set up a factory in Bhuj On successful implementation of this technology by this firm, licences will be issued to others for utilisation of the know-how. The shaft kiln has also been utilised by the Fertiliser Corporation of India for recovery of sulphur from pyrites. A gear device has also been developed in this laboratory which can be incorporated in bicycle with minor modification A firm in Bangalore will manufacture this item based on the Laboratory's know-how. The Laboratory has also developed the design of distillation still for extraction o efssential oils. Such stills fabricated by this Laboratory are in operation in different parts of this region.

Paper Products

The country spends a large amount in foreign exchange for import of a variety of speciality papers required in various industries The Laboratory has been working on development of know-how for making these types of paper utilising the indigenous raw-materials. The processes which are made available for commercial exploitation are – Matrix board for rubber stereo and stereo-flong, Correction paper, NCR paper, Direct copy paper and Thermographic paper. Of these processes, Correction paper, Direct copy paper and Matrix board are already in production. Work is in progress for developing process know-how on Industrial filter paper, Gasket paper etc.

Processes for Rural Cottage Industries

In order to suit the need of cottage and microscale industries the Laboratory has developed a number of processes. These processes do not require much capital and skill. Paper slate, Plastic slate, Water filter candle are a few of this kind. All these processes are in commercial production. The first three processes have been taken by more than fifty parties in the country.

Geo-Science

The Geo-science division of the Laboratory is making studies relating to the siesmicity, microzoning of high seismic area and seismic factor at selected sites of N.E. India Investigations on selected problems in Geodynamics having important bearing upon distribution of petroleum and other minerals are also being carried out. The study includes theoretical modeling in the light of plate convergnce concept to correlate the occurance of intermediate earthquakes, ophiolitic rock sutes with the distribution of mineral deposits It has been observed that a prima facie correlation exists with the manifestation of intermediate earthquakes, polymetallic deposits and minerals like petroleum. These theoretical model studies have considerable importance in the context of the difficult terrain and complex geology of the region.

Experimental Stations in the N E. Region

In order to assess the regional resources and to adopt R&D activities appropriate to the regional and national needs, to offer expertise, consultancy, design and engineering facilities and analytical and testing services to the N.E. states and to fill the communication gap between these states and CSIR Laboratories and on the basis of requests from respective states, the Laboratory has established three sub-stations in Imphal (Manipur), Shillong (Meghalaya) and Yaong gyimsen (Nagaland). Experimental-cum-demonstration farms on medicinal and economic plants are functioning in these sub-stations. Steps are in progress to establish two more sub-stations in the states of Arunachal and Tripura In the mean time the Laboratory has set-up a paper slate industry in Yaongimsen village and handed over to the local people for its management. Earlier, the Laboratory through the financial assistance of the Industries Department of Nagaland setup a 600 kg per day distillation unit on turn-key basis to distil the citronella grass cultivated by the villagers under the technical guidance of this Laboratory. The distillation unit is in operation since May 1975. Experimental cultivation of Dioscorea has been undertaken by the Laboratory at Sipanijhola in Tripura. Pyrethrum, a plant having insecticidal properties is being tried in Meghalaya

Other Activities

The Laboratory has been providing testing facilities and consultancy services to individuals, industries and Government and private sector undertakings. In association with the Arunachal Pradesh Administration, RRL-Jorhat organised a botanical exploration in Tawang area of Arunachal Pradesh. NBG. Lucknow, RRL-Jammu and Botanical Survey of India, Shillong also collaborated with the Laboratory. The objective of the exploration was to locate and assess the medicinal, essential oil bearing and economic plants and explore the possibilities of establishing industries based on these resources. The survey party collected more than 100 plant specimens having economic value and suggested four small and medium scale industries based on these resources. A scheme has been prepared by the Laboratory for making different variety of paper out of "Suga Sang" bark available in Arunachal Pradesh. RRLJ orhat has also imparted training to some local people of Arunachal for making the paper and distillation of oil from lemon grass which grows wild there.

Regional Research Laboratory, Jorhat will concentrate its activities in the coming years on maximising its inputs in the selected areas by establishing interdisciplinary, interlaboratory and interinstitutional linkage Efforts will be also made to increase the level of the technologies developed and transferred. The Laboratory will also try to develop more appropriate technologies for rural areas based on the resources of these areas which will lead to dispersal of technology in rural areas, generate employment opportunities and build-up rural economy RRL Jorhat also proposes to adopt more villages in industrially backward areas in association with other developmental agencies and try to change the face of these villages.

Coals, Oils and Papers

THE REGIONAL Research Laboratory, Hyderabad (RRLH), one of the national laboratories under the Council of Scientific and Industrial Research is engaged chiefly on development of know-how for chemical industry, utilization of indigenously available raw materials and endering assistance to existing ndustries. The principal areas of vork are organic chemicals and ntermediates; pesticides; utilisaion of low-grade coals; vegetable ils; surface coatings; speciality apers; cellular and molecular bioogy; chemical engineering; comuter methods and design and ngineering

The laboratory undertakes sponored research on behalf of Industry. t also acts as General Technical Consultants to Industry The laboatory has well-equipped pilot lant and workshop facilities There re nearly 325 scientists and enineers on its research staff In the levelopment of know-how, studies re carried out on a bench scale or ilot plant scale and sometimes ven on a prototype plant scale. nvariably basic designs and someimes detailed designs are also proided along with process know-how, epending upon the requirements of he client. Nearly 80 processes eveloped by the laboratory have een released to industry for comercial exploitation, of which bout 40 are in production.

Some of the products and proesses for which technology has been eveloped are:

Organic Chemicals and Intermediates

This is one of the important areas here RRLH has made significant ontribution by making the coutrny elf-sufficient in many of the chemials.

Know-how has been developed or production of a series of chemials starting from toluene, a byeroduct of coke-oven/ petrochemical industry. The chemicals are enzyl chloride, benzyl alcohol, enzyl acetate, benzyl benzoate, enzo trichloride, benzyl cyanide, enzoic acid, phenylacetic acid and henylacetamide which are used in the drug, dyestuff and perfumery industries. Two commercial plants based on RRLH know-how are in production – one at Hyderabad and the other at Daurala near Meerut, meeting almost all the country's requirements. The process for benzyl chloride is based on continuous chlorination and operates trouble-free, whereas many of the plants all over the world are known to suffer from polymerization.

A process for monochloro acetic acid, an organic intermediate has been released for commercial exploitation. Know-how for cyanuric chloride, which involves complicated reactions has been developed under sponsorship of a leading chemical firm. Cyanuric chloride is used in the manufacture of dyes and pigments. Know-how has also been developed under sponsorship, for glyoxal, a textile finishing agent. Conditions have been worked out on bench scale for making epichlorohydrin from propylene, which is a downstream byproduct of petrochemical industry. Epichlorohydrin is used in the manufacture of epoxy resins and plasticizers. Glycerol is obtained as a valuable byproduct. The laboratory is in a position to offer technology for the production of acetic acid, acetic anhydride and acetaldehyde, in collaboration with a leading firm manufacturing these chemicals. A catalyst has been successfully developed for hydrogenation of benzene to cyclohexane, an intermediate in the manufacture of nylon. Upscaling work is planned in collaboration with the Gujarat State Fertiliser Corporation

Drugs and Pesticides

Processes developed (under sponsorship) for diazepam, the well-known tranquilizer and clofibrate, an anticholesterol drug, are in commercial production. Methaqualone, a non-barbiturate hypnotic earlier synthesised in the laboratory is being produced and marketed by leading firms all over the world.

Several organic compounds synthesised in the laboratory have shown promising pharmacological activity and one of the compounds (RH-8) has been found to have high anti-inflammatory activity in actual clinical trials and is likely to be marketed by a leading Drug firm in the country.

A number of pesticides have been identified at the national level for which know-how is being developd expeditiously. A well co-ordinated R & D programme has been drawn up and RRLH is collaborating with National Chemical Laboratory, Poona and Regional Research Laboratory, Jorhat, Assam, in this programme. The Laboratory has already built-up expertise in this area and developed a few pesticides, for example 'Citicide' and Methoxychlor, substitutes for DDT (the latter project under sponsorship from industry); 2, 4-D, a weedicide; MBC, a fungicide (sponsored by industry). With the coordinated efforts, the CSIR will be making significant contribution towards self-sufficiency in this important area.

Agro-products

Cottonseed Products: Pilot studies have been carried out on the many aspects of cottonseed processing. The work gave considerable fillip to the expansion of cottonseed oil industry which today contributes substantially to the edible oil resources of the country. A process for making chemical cotton from linters has been worked out. Chemical cotton finds use in many industries, e g. rayon, photographic films, gun cotton Methods have been developed for production of edible grade cottonseed flour. The flour is rich in proteins, specially lysine, an essential amino-acid and is bound to become an important protein source specially for vegetarians. Meanwhile the flour has found use as fermentation medium in tetracycline (antibiotic) manufacture and the requirements of some of the industrial units are being met from the pilot plant production at the laboratory.

Castor-based Products : India is a major producer of castor oil. But most of it is exported whereas it would be more advantageous to first convert it into industrial products and then export. RRLH has developed processes for making hydrogenated castor oil (HCO) and dehydrated castor oil (DCO) which are now in commercial production. HCO is used in making high pressure lubricants and DCO is used in good quality paints.

Cashewnut Shell liquid (CNSL): CNSL is a dark coloured liquid obtained in the processing of cashewnuts and does not find market as such. Proper utilization of CNSL is important for the economics of cashewnut industry which depends considerably on exports. Methods have been developed for upgrading and distillation of CNSL as well as for production of surface coatings from CNSL Based on this work, two commercial plants are in production, one in Hyderabad and the other in Bombay.

Active Carbons : Active carbons are widely used in chemical, pharmaceutical, sugar and other industries for decolourising purposes. Extensive work has been done on activation of various carbonaceous materials like wood charcoals, char obtained from carbonization of coal, etc A commercial plant based on pine char has been set up in Himachal Pradesh and is in production. The laboratory has supplied design and will be commissioning a saw-dust based active carbon plant for M/s Excelsior Chemicals Inc. at Manila, Philippines.

Speciality Papers . Know-how has been developed for special types of papers like drawng, document, and filter papers and for filter pads which are in large demand in the country, and which are still imported. These papers can be made from cotton linters, hosiery waste and tailor cuttings The process has been licensed to three parties of whom one has already gone into production.

Mineral Products

Low-grade Coals: Extensive studies have been carried out on low temperature carbonization of coal for production of smokeless semi-coke which can be used as a domestic fuel replacing the traditional non-fossil fuels like firewood and charcoal. A commercial plant is being set up by the Singareni Collieries Co. Ltd., at Ramakrishnapur in Adilabad district, Andhra, Pradesh. The plant which will have an initial capacity of 900 tonnes/day to be later raised to 2700 tonnes/day is expected to meet a large part of the domestic fuel requirements of the urban population in Andhra Pradesh and adjoining areas. RRLH provided the know-how and basic designs for the plant and M/s Engineering Projects of India Ltd., provided the detailed engineering.

Bleaching Earths: Naturally occuring Fuller's earths can be activated by heat or acid treatment to obtain bleaching earths. The activated earths can be used for decolourisation of vegetable oils and mineral oils. The Fuller's earth deposits available in the various parts of the country have been evaluated to assess their suitability for activation. Based on the process provided by RRLH a commercial plant is in operation at Korvi near Gulbarga in Karnataka.

Glass-lining Enamels : Glass-lined equipment is required by chemical, pharmaceutical and other industries The process know-how for glass-lining is a closely guarded secret RRLH has succeeded in developing compositions suitable for lining cast iron and mild steel vessels The process is under commercial exploitation

Silicon Carbide . Know-how has been developed for production of silicon carbide, a strategic material widely used in abrasive, refractory, electrical and other industries The know-how is a closely guarded secret known only to a few companies in the world. A commercial plant has been set up in Orissa based on RRLH know-how.

Inorganic Chemicals : Know-how has been developed for a number of inorganic chemicals e g hydrazine hydrate used in pharmaceutical industry and water treatment; sodium azide used in making detonators; anhydrous calcium sulphate, an efficient desiccant, x-ray grade barium sulphate, kaolin B.P , and aluminium hydroxide gel used in pharmaceuticals. Some of these chemicals are in commercial production

Design and Engineering

The laboratory has been laying great emphasis on developing this activity, as it is a weak link in the innovation process The Design and Engineering Group of the laboratory has already successfully completed a number of assignments on design of commercial plants Of these mention may be made of the plants for hydrazine hydrate, MBC, activated carbons, low temperature carbonization and sodium sulphate. Besides in-house projects, the Group undertakes design of plants based on process know-how supplied by the clients.

Cellular and Molecular Biology

Significant contributions have been made to basic research in the areas of preparation and properties of cell suspensions, reproductive biochemistry, regulation of growth, cell division and malignant tran formation and regulation macr molecular synthesis.

A new method for the prepai tion of rat liver cell suspensions h been developed. This method u like the earlier ones uses enzymes disperse the tissue and is widc used.

A new model of regulation cf c division and malignant transfo mation has been proposed. It suggested in the model that regul tion of growth occurs through negative control of the uptake essential nutrients

Studies carried out on transl tional errors in E coli present tl first substantial evidence of caus tion of extensive translational erro in a whole cell system under norm conditions of growth

A new group of proteins, name "Seminalplasmin" have been isola ed from bovine seminalplasma Sem nalplasmin is the second antim crobial protein isolated from anim sources. It is also a potent inhibit one of the most potent known transcription. It shows a most r markable specificity. This group proteins has considerable potent from the commercial point of vie also for use such as anti-bacteri agent.

Future Programmes

Attention will be paid on extra tion and utilization of minor o seeds to augment vegetable oil r sources Technical assistance w be given for the setting up of min plants in the countryside whe there is availability of these seed Technology will be provided for tl splitting of the oil into fatty acid Work will be continued on prepara tion of useful products from cast oil namely, tallow-like hard fats f soap-making, hydrogenated cast oil fatty acids and dehydrated ca tor oil fatty acids which find appl cation in greases, surface coating and plasticizers,

Efforts will be concentrated o development of technology for number of pesticides which are r quired to meet the growing requir ments of agriculture. The pest cides on the programme include mc nocrotophos, carbofuran, eno phosphates (DDVP etc.) and quinolphos (the last one in co laboration with Regional Researc Laboratory, Jorhat).

Considerable effort will be direc ed towards development of know how for organic intermediates requ ed in the production of pesticides

(*continued on page* 73)

SAFER TRAVEL—1

For Better Roads

THE CENTRAL Road Research Institute (CRRI), is functioning since 1950 under the CSIR as one in the chain of the National Laboratories. Its activities encompass research on highway engineering in its varied aspects, including road traffic safety. The objectives, identified in consonance with the prevailing needs include developing technology for investigation, design, construction and maintenance of different types of roads, bridges and runways in different regions of the country to achieve judicious rationalisation of the methods involved so as to effect otpimum economies and efficiency; developing labour intensive methods for construction of cheap all weather village roads to provide greater employment opportunities to the rural population and thus aiding the backward areas towards further development; developing tools, instruments and appliances related to highway technology to achieve self-sufficiency; carrying out research on characteristics of different types of road under different traffic conditions, incidence of accidents, road safety devices, psychology of road users, transport engineering and transport economics, rendering technical consultancy services to organisations in the related fields to avoid import of foreign expertise, training of road technologists for efficient and successcessful implementation of the road development plans of the country and disseminating technical information pertaining to highway engineering and allied subjects

New Techniques and Findings

With the changed traffic pattern, it became imperative to improve upon conventional highway engineering techniques or evolve new ones particularly suited to the diverse climatic, traffic and physical conditions which characterises the vast Indian sub continent. The major task today is the upgrading of the existing road net-work to suit the changed traffic conditions and the expansion of the road network to meet the outstanding needs, especially of the rural populations.

On the design aspect of roads, a number of scientific techniques to replace conventional and more or less approximate end empirical design methods, have been evolved. Advanced stress studies and studies on temperature differentials in concrete pavements have resulted in a scientific incorporation of these stress factors in design procedures. Designing of pre-stressed concrete pavements has been attempted in the laboratory and tried in the field with success. The work on the design of precast cement concrete pavements for use in emergency constructions, desert areas and city streets is in progress.

In bituminous surfacings, ston aggregate constitutes a sizable co component. The technique of pro viding this sand-asphalt surfacir in place of conventional two co surface dressings or open grade premix surfacings, for regions whe stone aggregate is costly, has bee improved. Investigations have al shown that the conventionally use crushed stone as coarse aggregate i bituminous constructions can b substituted at places where uncrus ed gravels are abundantly availab Scientifically designed mixtures locally available gravel and coar sand together with bitumen can for stable bituminous surfacings wi satisfactory performance.

Increased application is bei found for techniques worked on the Institute for providing mecha cally stabilized soil subbases f cutting down the conventional designed thickness of hard cru without losing efficiency, construc

Foundation problems at Vizag Port were taken up as Consultancy assignment by CRRI

ing stabilized soil rural roads using locally available soil and soft aggregates, stabilizing fine sands and locally available kankar with bituminous materials for road construction in desert areas and the technique for stabilizing highly clayey black cotton soils with small percentage of lime for road construction purposes.

Successful studies have been conducted to arrive at economical solution for strengthening and rehabilitating the existing thin cement concrete pavements showing signs of distress under the existing load of traffic, by developing techniques of providing suitable flexible and rigid overlays.

The Institute has evolved the asphalt mulch techniques which, in conjunction with other techniques such as drainage etc, is highly effective in checking erosion of hill slopes, one of the major factors responsible for landslides.

For expeditious and economical survey of hidden subsurface road construction materials, air-photo interpretation techniques have been harnessed and air-photo pattern for location of 'Kankar' and gravel have been evolved.

A few techniques in the field of bridge engineering have been evolved although work got started at a much later stage on this subject. A technique of strengthening of old existing bridges by post tensioning has been evolved. Work has also been completed to evolve suitable method of rating of masonry arch bridges constructed some 50 to 150 years back, and on the technique of repairing failed expansion joints in bridges.

Utilization of Local Material

Research and Development work has been carried out on two materials namely, burnt clay puzzolana and lime-puzzolana mixture; the former can be used as partial replacement of cement to the extent of 20-25 per cent in all cement based constructions, and the latter is a strength-based economical substitute for cement in certain categories of civil engineering works like pavement bases, masonry, mortars etc. Processes have been developed to improve the properties of low-temperature tars to be used as a road binder, and to improve the quality of bitumens produced from indigenous crudes. Other products developed are bitumastic jointing composition, pitch mastic composition and treated styrene pitch, and jet oil spillage resistance joint sealing composition.

Due to increase in overall development programmes and the spurt in construction activity in the country, the known sources of good stone, which is the basic material for road construction, are depleting. At places, good stone is not locally available and importing it from long distances becomes a costly proposition. Hence, it becomes a necessity to explore the possibilities of utilizing locally available materials for road construction purposes. Studies on some low-grade materials like 'Kankar', moorum, laterites, etc. available all over the country and generally rejected as good road construction materials, have shown that most of these inferior materials can successfully replace to varying extent, the more expensive stone or brick in road construction, either as such or in conjunction with other materials such as lime, cement, bitumen etc.

Successful uses of industrial waste materials such as fly-ash and blast furnace slag have also been evolved in road construction works.

New Tools

Major portions of road construction jobs are carried out manually because of abundantly available cheap manpower and due to limited availability of machinery. Hence, simple devices in the form of manual aids are to be made available for quality output and as relief from drudgery to the workers. A range of devices intended to measure the riding quality of road surrface have been developed with totally indigeneous content. These devices help in effective and convenient control of riding quality of surfaces both at the time of construction and future service. The devices developed are (i) Unevenness Indicator, (ii) Profilograph, and (iii) Automatic Road Unevenness Recorder. Licences for commercial manufacture of these devices have been issued to ascertain firms by the NRDC and the first two are in actual production. Some of the other devices developed, mostly for testing purposes are the Fatigue Testing Machine (patented and in production) for testing resistance of concrete and other construction materials against flexural repetitive fatigue; Covermeter to determine the thickness of clear cover and location of steel in R.C.C. member (Bridges) without making incision into the concrete; Nuclear Surface and Depth Density Probes to be used in non-destructive methods of measuring density; Tilt Meter and Crack Width Gauge for observations of tilt and cracking on various structures.

The Institute, in association with MERADO, Poona has developed Rotillor which can be used in road construction for intimate mixing of stabilizers with soils, and also for agricultural purposes such as seed bed preparation, mining of fertilizers etc.

Traffic and Transportation Studies

With the rapid urbanization and the consequent phenomenal increase of traffic on urban roads especially in metropolitan cities leading to traffic congestion, bottlenecks and hazards, the Institute was called upon to conduct comprehensive traffic and transportation studies of the major towns of Bangalore, Delhi, etc. The studies for Bangalore, and Delhi primarily aiming at an integrated development of transporation facilities and for ensuring economy and safety in transportation have been completed. The investigations have also led to the development of special solutions for the geometric design and traffic operation measures and of new safety techniques.

The Institute also conducted studies to plan the traffic and the road system in the industrial townships of Bhilai Steel Plant in Bhilai, Heavy Engineering Corporation of India in Nangal. A methodology was evolved to work out road widths in all these townships which have more or less similar traffic conditions A general methodology for working out road widths for towns having traffic conditions different from these towns has also been suggested

The Institute has also finalised uniform standards of road signs to be used all over the country.

The Institute is associated with various technical Committees of the Indian Roads Congress and the Indian Standards Institution for formulating standards, specifications and codes of practice for the changing needs and technologies The Institute undertakes, in cooperation with the State PWDs and others, experimental constructions for improvement of existing procedures for design and construction.

Consultancy

The Institute's expert consultancy services are being made use of by most of the highway construction and allied organisations functioning in the country such as, the Roads

Wings, the Border Roads Organisation, Engineer-in-Chief's Branch of the Ministry of Defence, the Central and State P.W.D.s., Municipal Corporations etc. for the solution of the complex and varied problems confronted by them

Some major noteworthy areas in which consultancy services were provided were: foundation engineering problems in Vizag, Kandla and Mangalore ports; reclamation projects of the Mormugao, Goa and Madras Harbour Port Trusts; landslide analysis and correction in far flung Himalayan regions and other hilly areas of J&K, Assam, NEFA and Uttar Pradesh; problems related to 'Sinking of Simla' to recommend preventive measures; design of air field pavements and strengthening of runways to accommodate latest heavy jet planes, investigations on road failures and strengthening or repair of pavements in different parts of the country; design of road pavements in problematic areas; assistance in the construction of stabilized soil roads and other type of cheap all weather roads, utilizing local material, in different States; problems of road construction in snow bound areas; investigations for improving road geometrics in many urban areas; traffic and transportation studies for Greater Calcutta, Bangalore, Delhi, Greater Bombay and Simla In addition, the Institute assists various road departments in establishing their own laboratories. This assistance is towards identification of needs of equipment, staff and infrastructure and in providing training to the staff

Technical Appraisal of Rural Roads

The Institute is actively collaborating in the concerted efforts being made by the CSIR and other agencies in the country towards integrated application of science and technology for all round development of rural parts of the country The endeavour is to start the development at district level by effecting improvements in various sectors such as industry, roads, health, housing, agriculture etc. in the district selected for development. The Institute is playing the role of co-ordination for the Civil Engineering Sector which includes roads, public health, housing and structures. Work in the Karimnagar district of Andhra Pradesh has already been started and is in progress.

The Institute also embarked upon the task of technical appraisal of the rural roads already constructed in the different districts of the country under the Crash Scheme for Rural Employment of the Department of Community Development, Ministry of Agriculture, Government of India. Field surveys were conducted by the Institute's teams in the various zones in which the country was divided for the purpose of this study, and as a result of these surveys, certain suggestions and recommendations particularly covering planning and phasing of road development projects, construction aspects of road, scientific quality control and supervision, maintenance aspects etc. were made.

Dissemination of results of research emanating from the Institute is beng done through different media The effort is to disseminate the information in such a wide dimension that it gets within the reach of all those interested in it. One of such media employed is the organisation of refresher/training courses by this Institute.

The Institute is regularly organising, since 1962, refresher courses to acquaint the in-service highway engineers with the latest developments in highway engineering research and techniques.

Currently one Referesher Course for Senior Highway of 16 day's duration and one for Junior Highway Engineers of 4 months' duration are being conducted per year. Mostly the nominees from Border Roads Organisation, Engineering-in-Chief's Branch, the Central and State P.W.D.s, Municipal Corporation etc. attend these courses. Over 800 engineers have been trained in these refresher courses so far The Institute was also selected by an expert team set up by the United Nations Development Programme, as a Centre for conducting Refresher Course Seminars for Highway Engineers from ECAFE region countries. Consequently, the Institute organised five refresrher courses during the last decade in which 84 highway engineers from India and other South East Asian countries such as Afghanistan, Indonesia, Laos, Nepal, Philipines, Singapore, Thailand, and Vietnam participated.

Another training course in Traffic Engineering and Urban Transportation Planning of two months' duration is being conducted for the last few years which is primarily meant to acquaint the town planners and municipal engineers with the developments in Traffic Engineering research and safety aspects.

To assist the States, whenever needed, the Institute has been organising workshops/extension lectures for the benefit of inservice highway engineers, particularly of the ranks of overseers and junior engineers for whom there is no built-in facility to keep themselves abreast with the latest know-how in the field of highway engineering. A few thousand have been trained in these workshops so far. Most of the work of CRRI is published through the Indian Roads Congress and the publications are distributed free to engineers in the country and on exchange basis to foreign organisations.

The Institute also provides training facilities for the nominees of user organisations, in research methodology or in specific research projects, on request.

Coals, Oils & Papers

(*Contd. from Page* 68)

drugs and dyestuffs. These include diketene and diketene based chemicals, methyl isocyanate, trimethyl phosphite and phthalic anhydride.

Process conditions will be worked out for making silicon carbide heating elements which are essential in the construction of furnaces to generate temperatures above 1400°C.

Work will be done on development of newer types of surface coating materials like microvoid coatings, resins, lacquers and paints from 3-pentadecylphenol obtained from cashewnut shell liquid and new primers like zinc phosphate.

With the help of the prototype coal gasification plant which is under erection, the following studies will be undertaken: (i) Gasification characteristics of different types of coals, (ii) Process development studies for making industrial fuel gas, low Btu gas for power generation, town gas and synthesis gas for production of chemicals, (iii) Collection of scale-up data for design of large-scale commercial plants. In view of the limited known resources of petroleum in India, complete gasification of coal is extremely important both as a source of energy as well as for the production of chemicals and fertilizers.

A number of commercial low temperature carbonization plants are going to be set up in the coming years Large quantities of char fines will be produced in these plants and it is necessary to provide proper outlet for the fines. Conditions will be worked out for conversion of the char fines to smokeless briquettes which can be used as domestic fuel. □

SAFER TRAVEL—2

Automotive Research

THE AUTOMOTIVE Research Association of India (ARAI) Pune, has been approved by the Union Ministry of Industry, to establish testing and research facilities for the automotive and anciliary industries with assistance from the United Nations Development Programme (UNDP) ARAI, set up in 1975, has installed and commissioned equipment for complete chemical analysis of metals and alloys and for physical and mechanical tests such as tension, compression, bend, shear, impact, hardness cupping test (for sheet material). The instruments for analysis include quick and precision instruments like electroanalyser, potentiometric titrator, spectrophotometer and polarograph. There are instruments for determination of hardness of rubbers and plastics, for detection and determination of depth, in coated surfaces with specialised equipment which includes elcometer. In addition, a complete range of equipment for carrying out tests on fuel, lubricating oils and grease and a magnetic flaw detector have been commissioned. Facilities exist for precision macro-examination with a sophisticated stereomicroscope.

The Metrology laboratory is equipped with high precision instruments mostly of imported origin. The equipment in this laboratory includes, measuring projector with a maximum magnification of 100, a coordinate measuring facility, double image system for centre distance measurement and a special screen for comparison of the profile of the component with the tracing besides universal measuring microscope, which can measure almost any type of dimensions in two planes, both internal with the provision of a photographic attchment and a number of accessories, to check the profiles of threads and gear profiles. The camshaft tester can measure the profiles not only of the camshafts being meanufactured in the country, but also the profile of any component.

Other instruments in the laboratory includes those for conventional precision measuring of internal and external features of any component.

The environmental laboratory has been equipped with chambers to create different conditions under which various components are required to be tested to ascertain their functional characteristics under different environs and also reliability. The chambers that are already commissioned are dry heat chamber, up to 300°C, cold chamber for sub-zero conditions up to minus 55°C, damp heat chamber, salt mist chamber for accelerated test for corrosion and mould growth chamber to assess the growth and sustainability of mould in sealed components. A dust chamber and a vibrating table system are under procurement. Facilities for impact and drop testing have been planned for. The engine testing laboratory has been established for carrying out performance and life test on all automative and industrial I.C. engines. For this purpose, three dynamometers have already been commissioned and tests on engines up to 150 HP capacity, both compression ignition and spark ignition could be undertaken This laboratory has been recognised by ISI, for testing automotive, industrial and agricultural engines, for their certification marking programme. Another dynamometer, for testing low speed stationary diesel engines is under commissioning. Three or more sophisticated dynamometers capable of testing engines up to 350 HP, engine analyser, pressure-volume diagram recorder and exhaust gas analyser are expected to be received in the near future, under the UNDR Project.

The vehicle testing laboratory is equipped with a precision fuel consumption meter, which can be used also on board the vehicle. An on the road brake tester and pedal pressure gauge are under shipment.

The instrumentation laboratory is equipped with precision transducers for stress, strain, pressure, displacement linear and angular acceleration, angular velocity, temperature amplifying and indicating instruments, X AY recorder and oscilloscope. A multi-channel utlra violet recorder, load cells, torgue and angular displacement transducers, digital indicators, and a programmable calculator with printer are under shipment. Many more diverse range of transducers are also under procurement. Besides these conventional electronic instruments like digital volt and ammeters have been procured.

In the automotive engineering field, the components and aggregates are required to be tested for life expectancy in specially designed test rigs and their behavioural pattern assessed in simulated conditions as obtainable in service. For this purpose several test rigs have already been installed and ARAI can undertake performance and endurance test in accordance with the applicable Indian and other national standards, of air and fuel fitters shock absorber (for endurance only) horns and horn relay, oil pressure switches, frictional material, like brake and clutch liners, crash helmet and horn switches. An experimental shop has been developed to provide facilities for fabrication of prototype and also manufacture of various test rigs.

The important projects completed by ARAI are development o engines and chassis for an autocycle rickshaw and improved design of a side car for a two wheeler, providing adequate rider comfort. The projects on hand are, development of a power tiller, rationalised design of a diesel engine and development of a crankshaft on S.G. iron. □

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Aeronautical Studies

AERONAUTICAL INDUSTRY is one of the most sophisticated techology based activity known to mankind. Revolutionary changes have been taking place in this industry every 10 years or so. Experience so far obtained elsewhere in the world shows that because this industry is closely related to defence, the rate of obsolescence in this area is much faster than in any other industry and hence its dependence on research and development is much more than in any other industry. In view of the strategic importance of R&D in aeronautics to this country, way back in 1957, the Council of Scientific and Industrial Research recommended the establishment of a National Laboratory for R & D in Aeronautics and the Governing Body of CSIR endorsed the proposal. Thus the National Aeronautical Laboratory came into being in the year 1959.

The primary objective of the Laboratory is the scientific investigation of the problems of flight with a view to their practicali application to the design and construction of flight vehicles. Emphasis is laid on the deliberate and planned growth of disciplines that are relevant to the flight vehicle development in order that the Laboratory may offer full back up research and development capability and facilities for the prototype development of such vehicles.

Current Activities

The R & D work of the Laboratory is organised into seven disciplines viz. Aerodynamics, Propulsion, Materials Science, Structural Sciences, Instrumentation, Electronics and Mathematical Sciences.

In the field of Aerodynamics the Laboratory offers full research and development support to designers of aerospace vehicles and assists in wind tunnel testing of scale models of various aircraft, missiles, launch vehicles, etc. The R & D activities are directed to meet the immediate needs of the aerospace organisations as well as national requirements in the foreseeable future. Currently, the activities are: facility development and operation, aircraft aerodynamics, separated and turbulent flows and wind energy.

In the area of propulsion, the activities at present are being carried out in four disciplines viz. Cascade flows, aerodynamics of turbo machinery stages, combustion and gas dynamics and mechanical aspects of turbomachines.

Growth of aeronautical and space activities have been intimately related to better understanding of the existing materials and development of new materials. In this field the Laboratory is carrying out analyses of the existing materials, exploratory and advanced developments related to new materials, their analyses and novel fabrication processes. Current activities are: fatigue and fracture studies, materials testing and failure analysis, unconventional fabrication tehniques, technology of composite materials, preparation and evaluation of materials, and development of high temperature alloys.

The Laboratory's interest in Structural Sciences is to conduct investigations that would advance the basic knowdlege of aircraft structures for use in the design and construction of aircraft, helicopters and missile[s]. The major research programme[s] are currently being confined in th[e] areas of Vibration and aeroelasti[-]city, structural mechanics, com[-]puter oriented structural analysi[s] and composite structures.

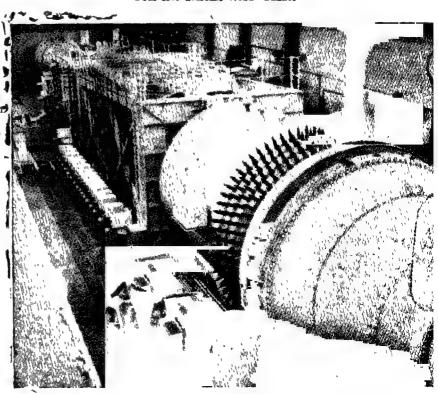
Development of transducer tech[-]nology for the measurement o[f] aeronautical and mechanical para[-]meters and digital electronics fo[r] data acquisition and control, an[d] power electronics are the interes[t] of the Laboratory in the field o[f] Electronics and Instrumentation. Th[e] Laboratory has built up competenc[e] in microprocessor based system[s] for industr'al/research application[s].

The Laboratory is actively engag[-]ed in the development of real tim[e] computer controlled aeronautica[l] test systems, and conducts investi[-]gations on man-vehicle interaction.

Achievements

When the Laboratory was estab[-]lished in the year 1959, there wa[s] hardly any capability in the countr[y] for providing R & D support to th[e] Aircraft Industry which has been i[n] existence for nearly two decades.

The very first task taken up by th[e] Laboratory was to establish a win[d] tunnel complex for the generatio[n] of aerodynamic design data fo[r] flight vehicles. In the absence o[f] such facilities, the country's aircra[ft] testing work was being done i[n] foreign wind tunnels at exhorbita[nt]

Four feet Trisonic Wind Tunnel

costs, inordinate delays and risk to nation's secrets. With the commissioning of the 4-ft x 4-ft trisonic wind tunnel in 1968, more than 6500 test runs have been made on various models of flight vehicles being designed in the country. It is estimated that as a result of this activity a saving in foreign exchange of the order of Rs. 400 lakhs has been affected. In view of the importance of the wind tunnel facility to aerospace programmes, this facility is being treated as a national facility and is being used by the aircraft industry, defence establishments and space organisation on shared cost, shared time basis Through this source, the Laboratory's annual receipts are of the order of Rs 30 lakhs.

With the capability generated in NAL over the years, the Laboratory is in a position to significantly contribute in the area of R & D for airframe of advanced technology aircraft for defence NAL has participated in a number of national programmes for design and development of flight vehicles Typically among these are: development of advanced technology aircraft, modifications to fighter aircraft, development of helicopters, launch vehicles and satellites, etc. NAL also played a significant role in the AVRO Evaluation Committee as part of the analysis group for the Chairman.

Metal fatigue is a major problem in the aircraft industry. NAL has established its credentials in evaluation of fatigue life of aircraft. The capability has been demonstrated in testing of a fighter aircraft and the results so obtained have been of tremendous significance in the development of another fighter aircraft. The monetary saving to the National exchequer based on this programme is estimated to be of the order of Rs. 2,400 lakhs, during the active life of these aircrafts, which is nearly twice the total capital investment of the Laboratory.

The important milestones in aircraft design have invariably been preceded by the availability of newer and more exotic materials. In view of this, efforts have been concentrated by this Laboratory in the technology of fibre reinforced plastic which has many attractive possibilities of application in aerospace structures. Over the years NAL has developed a variety of FRP components and structures. These include piston rings for the Navy, circuit breaker components for the electrical industry, antennae and transportable shelters and radomes for Defence, etc. The technology of radomes developed at NAL appears to have export possibility which is valued at Rs. 100 lakhs during the next few years.

Failure Analysis

Failure analysis is another important problem being successfully tackled by the Laboratory. The expertise grown in the Laboratory has been applied for conducting failure analysis investigations on cases referred to the Laboratory by several organisations. Investigation into the failure of a helicopter structure, analysis of the fracture of wing root attachment of an aircraft, failure of engine thrust bolt brackets etc are some of typical investigations carried out by the Laboratory

For the rapid production of turbine blades and precision forming of complex shaped components used extensively in the aeronautical industry, high precision machining techniques are required. realising the needs of aeronautical and space organisations for advanced technologies not available in the country, the Laboratory has developed various unconventional machines such as spark erosion machine, electro-chemical milling machine, etc Besides aeronautical industry, the machines have wide applications in automobiles, railways and machine tool industry

During the last decade and a half, the laboratory has put the design of instruments for engineering measurement on solid foundation by fully developing transducer technology. Various instruments and devices such as pressure and displacement transducers with associated amplifiers, vibration pick ups, vibration meters and generators, strain gauges, strain measuring bridges, load calls and indicators, multi-channel pressure scanners, etc. have been developed. The transducer pilot plant has supplied these items to many organisations worth over Rs. 26 lakhs. The knowhow on some of these instruments and devices has been licensed to Industry for commercial production.

In aeronautics, measurement of a large number of parameters like those on aircraft structures strains and wind tunnel testing require automatic data recording systems The Laboratory has designed and developed 100,200 and 500 channel data loging systems, radio reporting ring gauges, semiconductor powera controllers, etc. not only for use in aeronautical research establishments but also in other organisations such as railways, other National Laboratories.

Electronic equipment and systems worth nearly Rs. 40 lakhs have been supplied by Electronics Pilot Plant.

Besides the inhouse research and development programmes, the Laboratory undertakes contractual R & D programmes sponsored by aerospace, defence, public and private sector undertakings.

In the aircraft aerodynamics, the Laboratory has taken a number of projects which include computer aided aircraft design, supercritical aerofoils, air intakes, transonic wing aerodynamics, etc. In the discipline of unsteady aerodynamics, the problem areas are in regard to dynamic stability and flutter and helicopter rotor aerodynamics

In the field of wind energy, designing and developing of various types of windmills is underway. This extends all the way from small windmills to charge the batteries in remote locations such as sea buoys, distant radio reporting rain gauges to windmills for water pumping purposes and windmills for generation of sizeable amount of power which may be fed into the grids.

As a sequel to the successful completion of fatigue programme on one of the aircrafts, the Laboratory has been entrusted with the responsibility of fatigue life evaluation of another aircraft in use by Defence

Development of a modern sophisticated computerised full scale fatigue testing facility for carrying out "Close Simulation" fatigue tests on airframes has been taken up This will be operated as a national facility for fatigue life evaluation programmes on future front line advanced fighter airfrafts

Design of a 750 Amps industrial type electro chemical milling machine for making stainless steel nozzle rings used in diesel locomotives has been taken up

A project funded by UNDP for the development and evaluation of high modulus fibre and ceramic fibre composites at a cost of Rs 17.19 lakhs has been taken up Another project for the establishment of Turbomachinery and Combustion Laboratory with the assistance of UNDP is also in progress

Development of newer techniques of structural analysis and synthesis with a view to apply these to practical problems of interest to aerospace organisations are the other activities envisaged in the current programme □

Food Technology

THOUGH MODERN agricultural technology has resulted in augmenting our food production, yet the benefit of this increase cannot be fully reaped unless efficient and effective methods of conservation, preservation and processing are increasingly adopted to curtail the post-harvest damage to food. Also there is a need to tap hitherto unutilised resources of potentially nutritious foods to meet the ever-increasing demand All this would require the generation and use of suitable technologies in all facets of production i e. harvesting, storage, milling, processing, marketing and distribution. For this purpose the Central Food Technological Research Institute (CFTRI) was establised at Mysore on October 21, 1950, as one in the chain of national laboratories under the umbrella of Council of Scientific and Industrial Research.

The primary objectives of CFTRI are to develop relevant technologies for post-harvest conservation, preservation and processing, develop nutritious food products from indigenous raw materials, and assist the new entrepreneurs and the food industry in launching new ventures, in expansion or diversification, and in solving day-to-day problems of production and quality control Besides the main laboratory complex at Mysore, the Institute has seven regional field stations, located at Trivandrum, Mangalore, Hyderabad, Nagpur, Bombay, Lucknow and Ludhiana to solve regional problems, to feed back information needed to identify problem areas and also to serve as extension centres.

Research and development activities of CFTRI during thelast 26 years have led to the development of about 135 processes, products, techniques and equipment designs, which have been released for commercial exploitation to nearly 455 firms.

The Institute's several contributions and achievements during the last 26 years have created an effective base for the development of agro-based industries, and have earned for it international recognition as a premier research institute in the tropics.

Conservation of foodgrains, which constitutes 80 per cent of an average Indian diet, has received high priority. The CFTRI is engaged in developing improved methods to protect the nation's foodgrains by minimising the losses during storage. Since nearly 70 to 75 per cent of the foodgrains are stored and used in rural areas, where storage losses are the highest, concentrated research effort is directed to improve rural storage structures and devise new control methods for application in rural areas. Several techniques have been devised for application in different situations, including fumigation processes to destroy insect infestation, both in bulk storages as well as small scale storages; pest proofing of stacked and stored foodgrains by suitable emulsions that prevent insect attack, and rodent control measures The fumigation process for protecting commercial stock of foodgrains is being used by nearly 30 per cent control firms and organizations The pest-proofing process is being used by several agricultural marketing agencies to conserve the quality of stored foodgrains. The application of these techniques by pest control firms and organisations is helping to drastically cut down the nation's food losses Different types of small scale rural storage structures, made of clay, plywood, plastic enforcement, metal and RCC are being evolved by the Institutute in collaboration with some of the other national laboratories.

Inexpensive fumigant tablets ampoules and discs have been deve loped to disinfect cereals, pulse and seeds stored in small quantitie They are ideal for use in small scal household storages in both urba and rural areas.

A new line of research is the deve lopment of techniques to destro stored food pests without harmfu effects on men or environment. Non chemical protectants like speciall treated clay and tricalcium phos phate, now being tried out, come i this category. Recent large scal trials abroad have proved that mille grain, flours and enriched food can be protected against insects fo several months by adding prescribe amounts of calcium.

New Milling Methods

Another area in which major re search thrust has been made is th processing of foodgrains. Since ric is our major foodgrain, it has re ceived special emphasis. One of th important tasks is to increase th supply of rice by improving the mil ing efficiency, to preserve the nutr tional quality of rice, and to recove various byproducts for econom use New and economical desig are being developed to increase th efficiency and reduce the cost c machinery and equipment. Based o CFTRI's studies on various typ of traditional rice mills and moder technologies available, a systemat programme for raising technolog cal status of the traditional rice mil is being implemented by the Go vernment

The Analytical Quality Control Laboratory of CFTRI provides testing facilities for examining individual food items

Recently, the CTTRI has designed a minirice mill to suit village needs, as a substitute for the widely used inefficient huller mills. The mini rice mill has a capacity of 500 kg of paddy per hour,gives higher yield than conventional huller mills and the same percent age of yield as a modern rice mill. Its cost may not exceed Rs. 30,000 to Rs. 35,000.

About 50 per cent of the paddy produced in the country is processed into parboiled rice to meet the demand of a large section of the people in Bengal, Orissa and Kerala and certain other parts of South India. Conventional parboiling techniques are time-consuming, and the parboiled rice suffers from discoloration and disflavour due to prolonged steeping in cold water. These defects have been overcome by CFTRI's improved parboiling process which is being used by about 500 rice mills. This improved process cuts the processing time from two or three days to about four hours, and offers the consumer parboiled rice of a very high quality, free from bad odour.

It is a common knowledge that housewives generally prefer aged rice than new rice which when cooked becomes a pasty mess. To impart qualities of old rice to the new, the CFTRI has developed a simple steaming method, and this has been adopted by a number of rice millers in Karnataka

Production of foodgrade oil from the rice bran, available as a byproduct from rice mills offers a substantial way to increase the food oil supply. But to obtain a good quality oil, the rancidity that develops fast in the bran after its removal from rice, must be prevented This has now been made possible by the technology developed by the Institutute to stabilise the bran An equipment devised for this purpose costs about Rs. 15,000/- and is proposed to be installed in a number of rice mills. Fabrication of the equipment can be undertaken by small scale industries. Even if 50 per cent of the estimated 20 lakh tonnes of rice bran available from rice mills is used for extraction, nearly 1,30,000 tonnes of edible grade oil can be obtained. The Food Corporation of India is considering to promote the production of edible rice bran oil in the country.

Better Utilisation of Millets

Millet grains like maize, sorghum, bajra and ragi constitute about one-fourth of the total foodgrains produced in India, and from the staple food for large sections of our population; yet they are generally regarded as inferior or 'coarse' grains, and are not commercially processed or universally accepted. The CFTRI has developed technology for processing these grains with a view to rendering them suitable for more widespread and diversified uses as foods.

The processed grains can also be used as basis for making nutritious and snack foods Polished maize, jowar or bajra can be used as a substitute for rice for making several traditional dishes with better consumer acceptance. Properly processed maize *suji* can become popular as a substitute for rice *suji* for preparing *idlis*, or for wheat *suji* for preparing *uppumav*, sweet *bhati*, etc.

In order to increase its suitability as a commercial product, the maize will have to be dehusked and dezermed. For this purpose, CFTRI has developed a mini-maize mill with a capacity of half a tonne maize per hour, and it can be set up in rural areas and small towns with an investment of about Rs. 1,25,000. The Institute is assisting in setting up several maize milling units, including the one recently set up by the Tamil Nadu Agro-Industries Corporation, in Madras.

Modern Dal Mill

Another important gain achieved in milling efficiency relates to processing of pulses which are an important protein source for people dependent on cereal diet. About 75 per cent of the pulses produced in the country are used as *dal*, after milling The Institute has simplified and improved the traditional milling technology and developed a modern dal mill to cut down the processing time and to give higher milling yields

Processing of wheat and utilization of its byproducts are also receiving important attention. The processing suitability of the high yielding varieties is being assessed so as to assist the milling industry to choose the right raw material. A simple milling process is under development for preparation of different grades of flours and semolina for use in small bakeries and households. The use of suitably processed non-wheat flours in bakery products is also being explored with a view to exploiting locally available cereals and millets in areas where wheat is not grown.

The losses of fruits and vegetables between the farm and kitchen, a considered to be heavy because their susceptibility to decay, dama due to rough handling, and deteri rative changes in composition. F achieving fuller use of fruits an vegetables that are produced, t CFTRI is engaged in developi techniques for cutting down deteri ration and spoilage of these high perishable products through ne and better methods of packing, pr cessing, handling and storage. A propriate low temperature conc tions have been established und which different varieties of fru and vegetables can be stored witho much loss in quality, thereby im roving their marketability in dif rent parts of the country.

Refrigeration is an effective to for preventing spoilage, but for lo distance transportation or mark ing under the climatic conditio obtaining in India, it is not cons dered economical, and most of t traders cannot afford it. Studies designing other suitable metho therefore, assume significance. P packaging, application of pla growth regulators before or aft harvest, and skin coating of certa varieties of fruits by a wax emulsi are among the methods that ha been developed to reduce po harvest spoilage.

With the Institute's technical ass tance in wax coating and packagin "loose jacket" variety of orang grown in Coorg were shipped w hout refrigeration to foreign cou ries. The cartons used for pack these oranges were also designed CFTRI. In view of these successf shipments, the Karnataka Gover ment is understood to be explori the possibility of exporting Coo oranges to Southeast Asia.

Fruit Products

The CFTRI's technical servic have also made it possible for Indi bananas to be shipped long distanc to overseas markets with minimu spoilage, resulting in higher acce tance. For this,conditions have be standardised for detecting the co rect stage of maturity of banana and their harvesting, handling, trea ing, packing, transportation an storage. Fungal damage is preven ed by smearing an anti-fungal past formulated by the Institute, over t cut portions of banana bunches an hands.

Scientists are studying ways develop new improved uses for far products, and have established exc ing new possibilities for several v rieties of seasonal surplus frui

Factory produced delicious convenient products like clarified fruit juices and beverages, juice powders, semi-dried fruit pulp, fruited cerea flakes and dehydrated products, based on CFTRI know-how, have provided new outlets for seasonal fruits. The clarified juices which retain the aroma and flavour of the original fruit, and in which no sugar or water is added, are being manufactured and marketed by a firm in Mysore. An integrated process for extraction of pection, peel oil and calcium citrate from lime fruit has been introduced for commercial use by a unit in Maharashtra With large scale manufacture of these products the country will be able to meet its internal demand and possibly capture some share of the export market.

Researches have shown the way to utilise more beneficially after processing regional fruits like grapes and cashow apple, that are available only three to four months a year. The process know-how for the manufacture of fermented beverages like wine and brandy from these fruits has already been commercialised.

Export Products from Spices

Research programmes have given due emphasis on plantation, products like spices, tea and coffee, with a view to helping the export industry to earn higher foreign exchange for the country. The Institute's processing know-how has made it possible to produce and export high quality spice oils and extractives (oleoresins) which are increasingly used by food industries in Western countries, with added economic benefits coming from international trade Their export earnings have been over one crore rupees during the last few years.

Technology has also been developed for processing of ripe pepper berries into white pepper, and also for drying raw green pepper without losing its characteristic flavour and colour. Three firms have started producing dehydrated green pepper for export purposes. Dehydrated green pepper can be used in place of fresh green pepper for garnishing of meat dishes, and is popular in Europe as well as in other Western countries.

Fish, Meat and Poultry

Another area which is receiving increasing attention and new interest is fish, meat and poultry products. Studies are being carried out to improve the techniques of packing, storage and processing of fish and utilisation of inexpensive fish and byproducts economically. Since cured fish has an export market in West Asian countries, scientific methods of salting and sun-drying /mechanical drying have been developed for curing of fish. Commercial utilisation of improved methods for freeze-drying and packing of shrimps and canning of oil sardines developed by the Institute could also help boost exports of these products.

Some of the meat products developed by the Institute are dehyrated mutton mince, cured meat, and comminuted products like sausages, hamburger, salami, and meat loaves.

The Institute is soon to set up a modern training cum-research abattoir.

High Protein Foods

The Institute's work has provided new outlets for poultry products and spurred further development of poultry industry. Using CFTRI know-how, the first egg powder plant was set up near Bombay a few years ago, and the second plant is being established at Karimnagar District of Andhra Pradesh. The Institute's egg coating technique is enabling traders to double the storage life of eggs, thereby cutting down losses due to spoilage.

The CFTRI has pioneered the development of technology for processing and upgrading groundnut cakes, available after the recovery of oil, for use in making a wide array of palatable, nutritious and high protein foods. Several of these products, now coming to the market to meet the nutritional requirements of the vulnerable sections of our population, are the results of researches done at CFTRI. One such product is a weaning food which has been commercially introduced by the Kaira District Cooperative Milk Producers' Union, Anand, under the trade name Bal Amul. Its production during the last few years has been nearly 36,000 tonnes valued at Rs. 2 crores. Another high protein food is Bal Ahar which is extensively used in various child feeding programmes in the country. The production of Bal Ahar has now gone up to 32,000 tonnes. It is understood that the Food Corporation of India, which is the manufacturing agency for Bal Ahar, is likely to raise the production of this high protein food to 40,000 tonnes during the current financial year.

The Institute has won international recognition for development of a protein-rich milk-like drink, based on vegetable protein isolate and milk on 50-50 basis. First introduced for child feeding programmes in Bangalore a few years ago, it is now being produced also at Hyderabad and Cochin under the Food and Nutrition Board of the Government of India.

The first high protein supplementary food developed from groundnut cake flour is the Indian Multipurpose Food and it is now being manufactured by a firm at Mysore and another firm at Kotdwara, Uttar Pradesh.

Another product with a potential for production in various regions of the country for child feeding programmes is an inexpensive, nutritious and ready-to-serve food, called energy food. The main ingredients of this food are: roasted wheat flour, Bengal gram flour, edible groundnut flour and jaggery. About 100 gms of this food provides 16 grams protein and 380 calories. The Institute is producing and supplying 20 tonnes of energy food every month for a feeding programme under the India Population Project being operated by the Karnataka Government in cooperation with the World Bank, at Chitradurga, Karnataka. The Karnataka Government is expected to launch a project for establishment of three units for the manufacture of energy food.

A commercial plant established in Bombay with the Institute process know-how and engineering details has been producing protein isolate of above 90 per cent purety from groundnut for the past nine years. Protein isolate finds use in infant and weaning foods, biscuits and confectionery products, in toning of milk and in ice-creams. The turn-over of this plant during the last few years amounted to nearly Rs. 78 lakhs yearly

Malted beverages, widely used as nutritious food by both the convalescent and healthy people, are mostly based on milk. A malted beverage in which milk is replaced by protein isolate is now being manufactured and marketed by a firm in Madras, using CFTRI know-how

Today lots of more protein-rich products based on different oilseed meals are at the experimental stage.

The first infant food based on buffalo milk was introduced in the Indian market, using CFTRI technology. This product, marketed under the trade name Amul Baby Food, is a household name in the country. This development has made a great impact on the dairy industry

resulting in the stoppage of baby food imports. Cumulative quantum of production of infant food in the country since 1964 has been over one and a half lakh tonnes, valued about Rs. 162 crores.

The rapid urbanization that is taking place in the country has created a growing demand for ready-to-use foods. Several small scale industrial units have sprung up in recent years for manufacture of ready-to-use foods. A variety of convenience foods including dry ready-mix powders for making popular dishes like *idli*, *vadai*, *dosai*, *jamun*, *jilebi*, *chakli* have come to market during the past few years based on CFTRI know-how, and they have reduced long hours of drudgery for the housewife.

Food, Machinery and Packaging

Technological success, quality and standards of the products of agro-industries will depend largely on the use of proper equipment and machinery. Therefore, there is good scope for the development and manufacture of suitable machinery for use by cottage, small and medium scale agro-industries. Several items of processing equipment have been designed by CFTRI, and are being manufactured in the country. They include different types of vacuum concentrators used for milk, malt, coffee, tea and fruit juice concentration; dehydrators for malted foods, vegetables, coconut, cereals, etc ; milling equipment for paddy, maize, and pulses; and precleaning equipment like graders, aspirators, destoners, etc.

Some of the units set up with the engineering assistance of the Institute are: plants for production of protein isolate, baker's yeast, and malted and nutritive beverages, integrated utilisation of citrus fruits, juice concentration, fruits and vegetable processing, spice extraction, whole egg powder, instant mixes, dehydration, etc.

Packaging is vital for protecting and maintaining the quality of food, right from the point of production to the market and beyond. The CFTRI has developed expertise and facilities to assist the industry and other organisations in the design, development, testing, evaluation and quality control of packaging for various foods and food products.

The CFTRI provides a variety of specialised technical services to the existing industry, new entrepreneurs and government agencies, and also offers turn-key technology with guarantees of performance. The technical services comprise everything, from preparing project and feasibility reports to guidance and assistance in selection, installing and trial running of machinery. Analysis, testing and standardisation of processed food products is one of the important services offered to the industry, to food processors, retail traders, and government and semi-government institutions and agencies. An analytical quality control laboratory has been set up to provide testing facilities on payment of scheduled charges laid down for physical, chemical and microbiological examination of individual food products. Several thousand samples of fruit and vegetable products, manufactured in the country are analysed every year to ensure that they conform to the standards laid down by the Fruit Products Order of the Government of India.

CFTRI's well-equipped training and educational facilities meet the needs of food industry and Government agencies. The Institute also serves as an International Training Centre in Food Science & Technology for the countries in South and South-east Asian region. In view of the expertise it has built up over the years CFTRI has been chosen by the United Nations University as an associate institution for practical research and advanced training in post-harvest conservation, preservation and processing of food.

Technical Services

Consultants to a number of manufacturing concerns, cooperatives and Government organizations and agencies, CFTRI in the past few years has completed nearly 50 major consultancy assignments. Currently, about a dozen major assignments are in hand. Besides, on an average between 4,000 and 5,000 minor consultancies are handled by the Institute annually.

The variety of services rendered by CFTRI in the past several years have been instrumental in the establishment of many food industries in the country, introduction of new products in the market, and improvements in the sanitation, increase in nutritional value, enhanced shelf-life and better quality of food products.

The CFTRI is alive to the changing and growing needs of the industry as well as the people, and can be depended upon to face and handle the challenging tasks that may be entrusted to it. The Institute's research and development efforts, are being geared to meet the mounting demand on the country's total food resources. The efforts to conserve what is available for human use and to utilise them even more efficiently, and to exploit untapped food resources, will be continued vigorously. Since there is expected to be an increasing need of not only convenience foods but also foods with high nutritive value, more emphasis is being placed on development of such foods. Processing and storage will have a pivotal role in the food supply system of the future, and as such, development of better techniques of processing, packaging and storage is envisaged. Processed foods like modified starches, modified fats, new protein foods based on locally available raw materials will receive increasing research attention. In keeping with socio-economic changes that are taking place in the country, several of the research and development programmes will be oriented to suit rural needs and application. □

MILK FOR THE POOR

Having increased the country's milk production to 30 million tonnes a day, the dairy science experts are faced with the problem of minimising the cost of its production. The nutritional experts are intrigued over the increased milk yield and decreasing per capita consumption.

The dairy scientists are of the view that one way of minimising the cost of milk production is to popularise among the breeders of milch animals the techniques of enriching dry roughages by adding urea and molasses to wheat straw and paddy straw. The Fodder Research Stations of the various Agricultural Universities in the country have evolved different strains of nutritive grasses suited to varying climatic conditions.

Yojana Quiz

YOJANA QUIZ

1. The total available volume of water flow from India's rivers per year is assessed at
   (a) 2,000,100 million cubic metre.
   (b) 1,683,000 million cubic metre.
   (c) 5,143 000 million cubic metre
2. What is the greatest depth of Indian Ocean?
3. What is the estimated water resources in India?
4. In which games are the terms 'open file' and 'luff' used?
5. What is the distance of the longest race ever recorded in athletic history?
6. What is the route kilometerage of railways in Afghanistan?
7. Philippines consists of how many islands?
8. First Hydro-electric Station set up in India was at
   (a) Mysore
   (b) Srinagar
   (c) Darjeeling
9. What is Ostpolitik policy?
10. What is Autarky?

Answers

1. (b) 1,683,000 million cubic metre per year.
2. Diamantina Trench 26400 ft.
3. India's water resources have been provisionally estimated at 1,35,60 lakh acre-feet.
4. Chess and Sailing
5. New York to Los Angles 5776 km. from March 21 to June 16, 1929
6. There are no railways in Afghanistan. Rough mountains have prevented the building of rail-roads
7. It consists of 7,090 islands.
8. (c) Darjeeling in 1897-98
9. West Germany's policy of rapprochement with Communist East Europe.
10. The idea that a country should produce everything it requires and cut down foreign imported goods. It gained considerable impetus after the World War I

Quotation Box

Each one (Freedom Fighters) fought because he felt that it was better to fight and die rather than live in slavery. How does this call for a reward ?

After having given their best to the family and through the family to the society, the aged are entitled to respect in the evening of their life.
—Morarji Desai

There is hardly an association in which politicians and others with vested interests have not hogged important posts for years and misused their enormous powers of patronage.
—Editorial in The Times of India

The Commonwealth is one of the best obnoxious organisations in the world.
—New Statesman

The political executive must pull up the bureaucracy where it is sluggish but it should create an atmosphere in which officials feel that zeal, initiative and hard work are prized and do not land them in the lapse of inquiry commissions.
—Nandini Satpathy.

Those young hands applauding us now may manufacture the bombs that will kill us if we too do not change our ways of living and leadership.
—R. Premadasa
Deputy leader, Sri Lanka United National Party.

Towards Safety and Efficiency in Mines

S. BAGCHI

INCREASED SAFETY and improved technology have long been the concern of the mining industry in all parts of the world. Mining Industry is three hundred years old. The Central Mining Research Station (CMRS) at Dhanbad, a National Laboratory under the Council of Scientific & Industrial Research was set up in the fifties.

As the country's primary research organisation on mining, the institute works to solve various problems to make mine safe and productive through systematic investigation and to develop import substitutes. The programmes envisage advancing mining technology for more efficient and higher recovery of fuel and mineral resources, improving mining conditions to protect the health and safety of the miners and ensuring conservation of minerals

The R & D programme has been organised to meet short term and long term needs. The immediate needs of the mining industry are met mostly on sponsored basis Solutions to problems are evolved on the basis of available information, supplemented by observations To meet the long term needs, systematic research is carried out on identified problems.

Branches of Activity

The work of the laboratory may be broadly divided into four segments:

Mine Technology – The programme is designed to make mining technology more productive and efficient consistent with safety

Environmental Control – The programme is to conceive, develop and demonstrate technology to reduce hazards from gases, fires and explosions. Ventilations of mines plays a significant part in this aspect.

Mine Engineering – The programme is structured to design and develop machinery, equipment and instrument for the mining industry. Development of import substitutes is an important aspect of the programme.

Mine Health – The aim is to lower the probability of occupational diseases and to protect miners from exposure to dust, noise, toxic gas, etc

Systematic and scientific observations have been made on different aspects of strata behaviour in the mine workings These observations are now of great help in designing support systems for reorganising old mines and planning new mines

It is now possible to determine the support resistance requirement for longwall faces, define the expected movement at stowed and caved faces, anticipate the occurrence of the first major weight in caved faces and define the efficiency of hydraulic and friction props

An instrument known as convergence indicator has been developed for ascertaining the roof movements The study of roof movement helps in the early prediction of any impending major danger A strata movement alarm which may be used as convergence, yield and roof sag alarm, has also been developed It indicates impending roof fall in mines in advance

Investigations have been carried out to determine the different parameters of surface movements due to underground mining of coal seams It has become possible to anticipate surface movements such as subsidence, slope, strains and angle of draw which have been used for studying the feasibility of extraction of coal seams.

Roof Support

The equivalent material mine modelling technique, developed on the principle of dimensional analysis and theory of modelling, has been perfected. It offers suitable remedial approach for working under river beds, acquifers, built-up structures and mining of thick, flat or inclined seam, specially when cavability of roof rock mass is to be anticipated under varying conditions.

Fall of roof and side wall is the cause of many accidents. The best way to prevent injuries from roof fall is to provide proper roof support. Investigation on such supports has been carried out. Besides strata movement and subsidence problems are also being investigated.

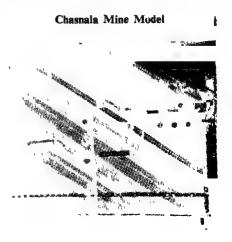
Different types of props (friction prop, hydraulic pit prop, hydro-pneumatic prop) have been developed for better support in mines. Most of the hydraulic props used in mines do not incorporate any device to indicate load coming on the props at any particular moment. The capacity of a prop also cannot be changed without dismantling in most cases. A new type of prop has been developed to meet these efficiences.

Equipment and ancillaries for a complete communication system in mines have been developed and successfully installed in mines. The whole system is technically known as Central despatcher system.

Installation of support system in mines is a costly proposition and it also affects free movement of machinery as well as men in the underground. A new and effective method of support has been perfected which is known as roof bolting. Today in India, roof bolting has been widely accepted A new type of grouted bolt has been developed which is more efficient and economical, compared to conventional bolts Resin bolting technique developed at CMRS is another device which reduces the time of setting. This is an important fact for roof control

Another method of support known as 'roof stitching', making use of old haulage rope, has been developed It is a fast, economical and more effective method of support compared to conventional wooden sup-

Chasnala Mine Model

Shri Bagchi is Director, Central Mining Research Station, Dhanbad.

port.

For coal mining, knowledge of strength properties of coal and rocks is very useful in designing safe and economical excavations and also for various other purposes. For estimating this strength, CMRS has developed a method called the 'compaction strength index test' which is simple and reliable compared to other tests used in the USSR and the UK.

Stowing is an important mining operation which is generally applied for preventing subsidence, conserving mineral, increasing production and avoiding fire. CMRS investigations have helped a number of mine managements increase rates of hydraulic stowing up to 20 per cent.

River sand is a cheap as well as common material for use in hydraulic stowing. But its consumption is increasing fast. The reserves of sand is dwindling CMRS has been investigating the use of various industrial wastes.

Blasting Technologies

More than a decade ago, a quiet revolution in blasting practice started in India and CMRS played a pivotal role by actively contributing towards evaluating the safety of the explosive and developing the technique of blasting

It was in 1961 when the first gallery for testing of permitted explosives was constructed at Central Mining Research Station. This was a great step towards the goal of selfreliance This has enabled the country to stop importing explosives and develop indigenous capacity for producing permitted explosives.

By changing the pattern of drilling and blasting technique in iron ore and copper mines CMRS has helped achieve considerable economy in blasting operation.

Investigation has been carried out to determine the efficiency of the solid blasting in mines For this purpose optimum blasting pattern has been developed The efficiency of different types of explosives has also been determined under various conditions. This will help increase output of mineral and reduce the cost of blasting operation.

The health laboratory has been investigating various occupational health problems of miners. The scientists of the laboratory are engaged in studying the dust condition in mines, the fatigue problems of the miners in relation to the hot and humid conditions in the mines, and the incidence of occupational diseases among miners. CMRS scientists have suggested various measures to reduce the dust hazards.

Prevalence of opthalmic diseases like defective vision, cataract, pterygiul, conjunctivitis, corneal ulcer, glaucoma, nystagmus, squint etc., is being studied. It is found that the percentage of miners having some problems of the eye is 29.06. Twenty-four per cent of the miners have defective vision.

CMRS has developed facilities for testing of material and equipment for mining and other industries. This has become not only helpful in the efficient and safe working in these industries but also instrumental in developing indigenous industries for the manufacture of standard mining equipment which otherwise would have to be imported.

The laboratory is fully equipped and is extending facilities for testing of safety equipment (flame proof, intrincssilly safe and dust tight) personnel protective equipment (helmet, caplamp, goggles etc) wire rope safety hooks distribution plates rope cappels, chains, shackles, pins, tub couplings, safety belts, clivy hooks, safe explosive, exploder, detonator, etc

Future Programme

A much greater effort will be required to make the working environment safe and conducive to better productivity This is where electronic and remote control systems would play a vital role not only in establishing intra-mine communication channels between highly dispersed work sites as is obtainable in mines, but also in the development of monitoring systems to detect potentially dangerous conditions before they reach the critical point, say, due to methane.

The trend towards greater working depth, more extensive mine layout and increased productivity will have its own consequences with an increase in gas and heat emission and a rise in dust levels. Improved techniques must be evolved for their elimination Research in an inherently safe mining system involves the entire gamut of mine climate covering not only these aspects but also spontaneous reaction and mine fire, explosiveness of coal dust detection of poisonous gases etc

Research in the improvement of the working environment with regard to temperature and humidity noise-level and lighting conditions needs greater attention, as do the much promising domains of ergonomics and ergometrics. In addition, it is necessary to determine the dietary and nutritional level of workers.

Therefore, the Central Mining Research Station is planning to develop new techniques of exploitation of minerals, design new ventilation systems and environmental controls, evolve safe parameters to render mining conditions free from hazards of explosion and fires, find explosives for safe and efficient breaking of minerals, as well as new partners of drilling and charging of explosives and investigate the environmental pollution of the mine atmospheres and occupational diseases of minerals and suggest control measures.

Safety and productivity are compatible A safe system is also an efficient and productive system The mission of CMRS is, therefore, to develop safe system which will be productive and economical Nationalisation of coal mines has brought significant changes in the mining industry and has had a profound impact on the activities of CMRS □

Technology evolved by CMRS has gone a long way towards productivity, efficiency and safety of the mines

Fuel Research

THE CENTRAL Fuel Research Institute located at Dhanbad has, besides its central laboratories located at Digwadih, seven coal survey laboratories one each at Dhanbad, Raniganj, Ranchi, Bilaspur, Nagpur, Jorhat and Jammu for covering the various coalfields.

The CFRI undertakes applied and basic research on all aspects of fuel utilization especially coal. The R & D activities of CFRI cover broadly the following seven areas:

1) Resources quality assessment, including geology and petrography of coal.
2) Preparation of coal – covering coal washing, demineralization, briquetting, pelletisation and flocculation studies
3) Technology for direct use of coal – covering combustion, direct reduction using coal and carbon artefacts for electro-thermal and chemical industries.
4) Conversion of coal – including carbonization, gasification, oxidation, hydrogeneration, solvent extraction and degradation techniques.
5) Product improvement and valorisation – comprising rrcovery and purification of chemicals from carbonization products, synthesis of liquid fuels and chemicals from carbonization and gasification product and byproducts, industrial carbons, and utilisation of wastes such as fly ash from power stations, washery sinks, etc.
6) Supporting R & D activities – dealing with basic science relating to nature and use of coal, coal systematics, catalysts and adsorbents, applied statistics, analytical services including instrumental analytical techniques and design and development
7) Supporting technical activities – covering engineering services, technical aid to industry and consultancy, techno economic evaluation of projects and feasibility studies, librang and documentation, reprography, coordination and dissemination services and planning, monitoring and costing of projects.

Significant contributions to have been made by CFRI to national economy through its coal survey programme. Besides identifying nearly 1300 million tonnes of new sources of coking coal, it has been possible to broadly categorise and quantise the different types of Indian coals under the heads 'prime coking', 'medium coking', 'semi to Weakly coking' and 'non-coking coals'.

The task completed so far has covered the rip quality under production and quality and property assessment of the virgin coal resources of about 300 seams encountered in various prospecting blocks. As a result, the following broad categorisation of Indian coals in terms of their reserves has been possible.

(i) Group A – Prime Coking – 5,651 million tonnes
(ii) Group B – Medium Coking – 9,433 million tonnes
(iii) Group C –(a) Semi to Weakly Coking coals – 5,070 million tonnes
(b) Non-coking (incl, tertiary coal and lignite) 62,886 million tonnes.

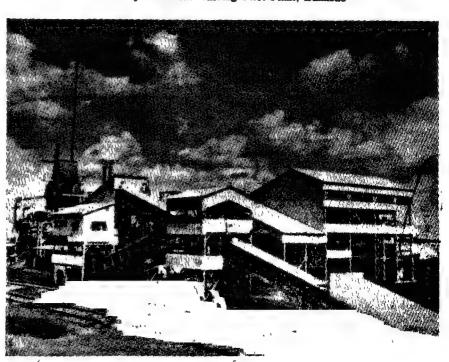
Preparation of Coal

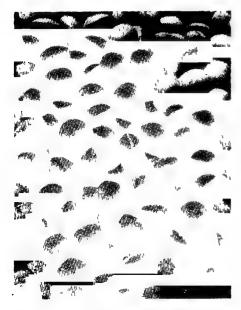
The most challenging task faced by coal industry today is to meet the growing demand for increased supplies of metallurgical coal of specified quality for steel making.

Achievements of CFRI are also reflected in the establishment of industries utilising basic know-how and design parameters provided by the Institute, 14 coal plants, at a cost of about Rs. 700 million, with annual installed capacity of about 26 million tonnes of coal have been established based on detailed design parameters and flow schemes provided by the CFRI. Five more plants with a washing capacity of 10 million tonnes of coal annually are projected for which also CFRI will provide basic data.

CFRI has developed for the first time an index for the comparison and correlation of the washability characteristics of coal, which has been recommended by the National Coal Board, U.K. for being adopted as international standard to classify coal based on their washability characteristics.

Some of the important developments include (i) improvements in the efficiency and capacity of subaeration floation calls by using grids– (ii) an integrated process (oleofloatation) for upgrading and dewatering of small coal and (iii) a process for de-mineralisation of coals by oil agglomeration technique which is perhaps the most remarkable as it enables recovery of clean coal with considerable mineral matter reduction and the low ash coals have

Composite Coal Washing Pilot Plant, Dhanbad

immense potential for use in a wide variety of specialised industries, such as electro-thermal processes, blast furnace, coal hydrogenation (to produce liquid fuels), etc. A demonstration plant of 2 t/h. cap, has been installed at Lodna in the Jharia coalfields.

Several processes for making formed coke from non-coking coal have been developed at CFRI, Formed-coke can be used as domestic, industrial and metallurgical fuels. The process normally requires briquetting, curing and carbonization steps depending on the end uses of the products. A 100 t/day briquetting plant, utilising coke breeze by the CFRI process has virtually gone on stream at Ghaziabad in the private sector though some teething troubles are being experienced. A Formed coke plant of 350 t/day capacity is now in the process of design and installation at Talcher based on CFRI process, at an estimated cost of nearly Rs. 30 million and the processed fuel so produced will be utilised in the manufacture of low phosphorous pig iron. It is anticipated that with the proving of the laboratory findings in the industrial scale, the door will be open for widespread steel industry all over the country, wherever lignite coal and iron ore occur.

Based on CFRI pellet coke process Bharat Coking Coal Ltd. has installed a 100 t/day plant near Kusunda (Jharia coalfield) for commercal production of smokeless domestic fuels from the inferior coking coals, to be sold in the market under the trade-name 'JWALA'.

The main CFRI contribution to the fuel and industrial economy of the country has been the introduction of use of low-grade coals for power generation which, incidentally has also made possible an offtake for the large production (over 30 per cent) of low grade byproduct fuels from washeries. The Institute has entered into a collaborative project with Bharat Heavy Electricals Ltd. and Central Mechanical Engineering Research Institute for developing fluid-bed combustion boiler, a new technology in the offing for power generation.

At the instance of the Ministry of Food & Agriculture, the Institute recently developed a husk-fired 16 kg/hr combustor-cum-heat exchanger for sup plying hot air for paddy drying

Coal Conversion Technology

(a) *Carbonization* : Considerable work has been carried out at CFRI relating to benficiation, selective preparation crushing and judicious blending of different coals, densification of coal charge, preheating, design improvements, etc. These are improved technologies which have contributed to on a rough estimate doubling the available potential of coking blendable coals for steel industry. The selective crushing plant at Durgapur Coke Oven Project was installed on the recommendations of CFRI. Based largely on CFRI work, steel plants and coke ovens in the country have adopted suitable ternary blends of prime, medium and blendable coals for metallurgical coke production.

Another significant achievement is the development of a new design for Beehive Coke Oven Design improvements made by the CFRI in collaboration with Tata Iron & Steel Co., over the conventional beehive ovens have made it possible to produce hard coke (without byproduct recovery) in about a third of the time normally required, thus contributing greatly to the entire economy of the industry. Several hundred such ovens have already come into being.

A prototype design was evolved for low/medium temperature carbonization of variety of semi-coking coals with simultaneous production of rich gas after byproducts recovery. Two commercial size vertical retorts were installed (capacity 20 to 30 t/day) with byproduct re covery units. About 22,600 tonnes of coal from more than 45 different sources in India, have been carbonized so far in this plant. Exploitation licences have been granted to two renowned foreign coke plant manufacturers and the Governmen Engineering Projects India Ltd Considerable interest is now bein shown 'for the adoption of LT(plants for the supply of both domes tic and industrial fuels in large citie like Calcutta, Bombay, Delh Patna, Kanpur, etc. Coal Indi Ltd. has decided to install CFR type LTC plant at Dankuni nea Calcutta, the tests for which with th linked coals were recently conclud ed at CFRI.

(b) *Coal to Oil* : The Institute ha been carrying out investigatior through all the three known route of coal conversion to liquid prc ducts, namely, pyrolosis, direc hydrogenation and Fischer-Tropsc synthesis.

In the pyrolysis route, the oi produced can be catalytically hydr genated to yield middle distillat (diesel, kerosene, etc.). As CFR processes have also been develo ed for hydrotreatment of Assar middle distillates to yield superi grade kerosene and diesel oil Th hydrogenation investigations a CFRI have centerred around th development of catalysts and choic of processing conditions especiall for development of low pressur techniques, with robust catalysts

Direct hydrogenation of coal o solvent extracted coal was achieve with cheap yet efficient throw-awa catalyst based on iron for the 'pro duction of syn-crude, the liquific coal A 18 kg/hr slurry phase hydro genation plant is being set-up Amenability of Assam Coal for th purpose has been established an coals from Raniganj and Singa reni hold promise Considerabl work has been done on the solver extraction of Jharia and Ranigai coals

F T process for the synthesis c hydrocarbons and chemicals re quires synthetic gas which is pro duced by complete gasification o coal with steam and oxygen. By thi process about 5 tonnes of coal yiel a tonne of liquid products of whic 30-40 per cent are energy fuels mor than 30 iron based catalysts usin different carriers and promoter were prepared and tested in benc scale unit. CFRI is now proposin to build a unit to produce abou 5 litres of liquid products per day

(c) *Conversion to Gas* : Two majo pilot plants using two differen techniques for complete gasifica tion of coals were installed at CFR One of the systems viz powder ed coal gasification techique ha been accepted by the Fertilizer Co

(*Contd. on Page* 102)

FUEL RESEARCH

(*Contd from page* 98)

poration of India for making synthetic gas in the first three recent coal-based fertiliser units

A catalyst (till recently imported) for removal of sulphur from gases developed by CFRI is now being extensively used in the country, e.g. for cleaning over 5 million cu. ft of coke oven gas per day for transmission from Durgapur to Calcutta and elsewhere.

Techniques for production of several important chemicals from coal tar, gas and benzol have been developed and when commercialised, large scale import substitution can be achieved. These include phthalic anhydride from crude naphthalene, anthraquinone from anthracene, nicotinic acid from picoline and pyridine from quinoline, naphthaldehydes from methyl naphthalenes, benzoic acid from toluene, o-& p-xylenes from meta-xylene, etc. These are important raw materials and intermediates for paint, dyestuff and pharmaceutical industries.

New techniques have also been developed for isolation and/or recovery of useful chemicals from coal tar as such or their conversion to more useful intermediates and fine chemicals, e g maleic anhydride, benzo-nitriles, phthalonitriles, cresols, beta-naphthol, resorcinal, 3 & 4 cyanopyridines etc.

CFRI has entered into developmental contract with competent consultants for 13 patented processes and have undertaken extensive demonstration runs of the processes for the prospective entrepreneurs The consultants scale up the process and offer turn-key plants and guarantee for successful operation of the know-how.

CFRI has also developed processes for important industrial products like carbon black from anthracene oil and acetylene, electrode carbons from pitch-coke or solvent extracts of coal, special electrodes for aluminium industry, carbon brushes, active carbons from coal, lignite, coconut shell, saw dust etc

The institute has developed a process for the utilisation of fly ash, a waste from thermal power station boilers, for the production of building bricks, blocks, roofing tiles etc the West Bengal Housing Board has set up a demonstration plant with the CFRI know-how for producing 6 000 bricks a day at Asansol

Fundamental investigations at CFRI on coal and on disciplines relating to coal utilisation have received international recognition These studies on techniques of dehydrogenation, pyrolysis, etc have provided knowledge on the state of combination of carbon and hydrogen in the coal molecules and have helped to put forward a structrual model of coal.

Some other activities include forecasting future energy requirements for the country, undertaking sponsored research on behalf of public and private sector organisations, liaison services to cater to the needs of the industries and government establishments, etc

The Institute publishes a quarterly journal, FRI News, and also valuaable monographs on topical subjects and proceedings of symposia organised by it. □

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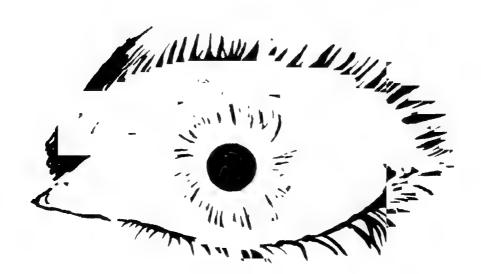
Printed at Universal Advertisers (The Unitiser Press) E/2, Jhandewalan Extn., New Delhi-110055 and Published by the Director, Publications Division, Patiala House, New Delhi-110001.

How shall our love console thee
Or assuage thy hapless woe
How shall our grief requite
The hearts that scourge thee
And the hands that smite
Thy beauty with their rods of bitter rage?
Lo ! let our sorrow be thy battle gage
To wreck the terror of the tyrant's might
Who mocks with ribald wrath thy tragic plight
And stains with shame thy radiant heritage.
O beautiful ! O broken ! And betrayed !
O mournful queen ! O martyred Draupadi !
Endure thou still
Unconquered, undismayed
The sacred river of thy stricken blood
shall fold the fivefold stream of freedom's flood
To guard the watch-towers of our Liberty

SAROJINI NAIDU

A POET'S RESPONSE

The disproportionate severity of the punishment inflicted upon the unfortunate peop and the methods of carrying them out, we are convinced, are without parallel in the history of civilised governments, barring some conspicuou exceptions, recent or remote Considering that such treatment has been meted out to a population, disarmed and resourceless, by a pov which has the most terribly efficient organisatior for destruction of human lives, we must strongl assert that it can claim no political expediency, far less moral justification Knowing that ou appeals have been in vain and the passion of vengeance is blinding the noble vision of statesmanship of our government, which could s easily afford to be magnanimous as befitting its physical strength and moral tradition, the very least that I can do for my country is to take all consequences upon myself in giving voice to th protest of the millions of my countrymen, surprised to a dumb anguish of terror The time has come when badges of honour make our shame glaring in the incongruous context of humiliation, and I, for my part, wish to stand shorn of all special distinctions, by the side of those countrymen, who, for their so-called insignificance, are liable to suffer degradation nc fit for human beings

RABINDRANATH TAGO

YOJANA

Volume XXI Number 15
New Delhi
1 September 1977
10 Bhadra 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.
Y o j a n a seeks to carry the message of the Plan, but is not restricted to expressing the official point of view.

Chief Editor
K.G. Ramakrishnan

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Editorial Office : Yojana Bhavan, Parliament Street, New Delhi-110001. Telegraphic Address : Yojana, New Delhi, Telephones : 383655, 387910, 385481, extensions 402 and 420, Circulation : Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription ; Annual—Rs. 18, Two years—Rs. 30. Three years—Rs. 42, Foreign Subscriptions : One year—£2.70 or $ 5.50. Two Years—£4.50 or $ 9.00. Three Years—£6.30 or $12.50 Single copy—twelve pennies or $ 0.25.

"There is no human institution but has its dangers. The greater the institution the greater the chances of abuse. Democracy is a great institution and therefore, it is liable to be greatly abused. The remedy, therefore, is not avoidance of democracy, but reduction of possibility of abuse to a minimum."

Returning to Gandhi

THE one beneficent result of the Emergency is the opportunity it has given for a basic thinking on what is democracy and how it may be preserved. Though the urban liberal, who has long nurtured the illusion that his benevolence is the equivalent of people's sovereignty, is bound to come out with institutional remedies, the frequent references to Mahatma Gandhi induce a hope that the discussion may be more basic and rewarding.

Disillusionment has already set in among the romanticists who saw in the vote the consummation of the struggle against the despotism of power Tyranny only continues in representative authority. The extension of the voting right is always accompanied by a system of checks with the balance in favour of the ruling class.

Gandhi, more than most people, recognised the naivette of those who were bewitched by franchise-based democracy made inseparable from a structure of immunities, privileges and reservations raised in the name of efficiency, objectivity, national interest, public interest, public safety and security With police power being recognised as the transcending duty of the State, the vote first became incidental to democracy and then a sanctifying instrument of tyranny and elite rule.

Degeneration was built into the "checks and balances" system and into the self-deception that large governments, adequately safeguarded against arbitarary action, can "represent" the people and reflect their will The dividing line was always thin between the populist who could rise to power on national sentiment using the levers of franchise-based democracy and the "democrat" whose faith in the people was always subject to his greater faith in efficient, honest and just government guaranteed by institutionalised concepts. In the bargain the vote did not represent people's sovereignty but was only a passport to elite rule. The continuing oligarchy was tempered to an extent by the inevitable welfare of the technological revolution. With economism becoming the sustenance of the political system, bread and power dulled sensibilities to such an extent that the vote meant nothing, proved nothing and brought nothing.

The vote is only an affirmation of remote oligarchy. Its antithesis is the non-vote, that is government by the people, not *of* or *for* the people. Gandhi instinctively recognised that the vote is only a device to take away from the people their right to govern themselves and confer it on their "representatives" who felt safe in the sanctuary of consumer society. The talk of participatory democracy offends the "intellectual" who immediately speaks of the anarchronism of city states. The "modern" knowledgeably talks of small governments and industrial progress going ill-together. And, for the "modern", progress is inseparable from industrialisation.

Gandhi began from the beginning. The logic of large government being industry wherein he recognised the

basic evil, he said, "My concern is to destroy industrialism at all costs". He equally rejected the welfare idea as the beginning of a mercenary society.

Gandhi's basic objection to industrialism was the oligarchy which it was bound to lead to. But he could not wish away industry nor the welfare concept in an environment of pervasive poverty. Gandhi did not seek to reconcile the contradictions; he was groping all the time and that was part of a timeless striving

It is this inner struggle, this groping which India seems to have lost in the unreality of freedom. Assurance, assertive to an aggressive degree, has robbed our development of the adventure of ideas. We seem to have accepted the eternal virtue of economic emancipation, social transformation and political democracy. Industrialising and planning, modernising and mechanising, voting and legislating, we march on. What seems to have been lost is the revolutionary ethos, the constant struggle of ideas that would transcend even a near perfect schemes of things

Gandhi himself had no ready-made prescription beyond saying that a satyagrahi does not seize power, he revolts against it ultimately and its abuse immediately; and that it is not twenty men in authority but millions in resistance that make a democracy. He spoke of ever-widening, never ascending oceanic circles, where the "outermost circumference will not wield power to crush the inner circle."

Gandhi accepted little and rejected less. If only we can be less sure of things and regain the ability of constant introspection, we would have done all the service to the memory of a fundamental political philosopher. Returning to Gandhi would at least save us from thinking that the big approach obliterates the smaller, that concepts are more important than ideas and that institutions transcend the people. And it will save us from the tyranny of experts preoccupied with the non-sense area of "development".

Building democracy anew may involve a thorough overhauling of the constitution, a renovation of the administration, an attack on urban parasitism, the destruction of the tyranny of "efficiency" and "expertise" and liberation from the hackneyed and artificial shadow-boxing between the "progressives" and the "reactionaries" both of them partners in the blood-sucking process.

The Great Infamy

WRITING on the Dyer debate in the British Parliament, Rabindranath Tagore said, "It shows that no outrage, however monstrous, committed against us by the agents of their government, can arouse feelings of indignation in the hearts of those from whom our governors are chosen. The unashamed condonation of brutality expressed in their speeches and echoed in their newspapers is ugly in its frightfulness".

How true this sounds in the context of some present debates in our country! Despite the relentless unfolding of the gruesome drama of the infamous nineteen months, when, to use the words of the Congress enquiry report on Jallianwala Bagh, "licentious conditions of judicial administration were created" and when there was "organised terror and disorder, martial law without the name", no feelings of indignation seem to have been aroused in the hearts of those who only speak of some excesses of the Emergency without being prepared to own up that the Emergency itself was the greatest excess. A party's greatness, to quote again from Tagore, "can never find its foundation in half-hearted concessions of contemptuous niggardliness".

Tagore wrote in the context of the simultaneous criticism of General Dyer and praise of Sir Michael D' dwyer. There is a strange parallel in some present criticism of the "excesses" and simultaneous justification of the Emergency.

The infamy of the Emergency is not so much in its proclamation as in the atrophy of intelligentsia conscience that it revealed. That this act against the Republic and India's inheritance was done in the name of the Indian National Congress, which, under Mahatma Gandhi, was the symbol of liberty and justice, does not appear adequately to have shocked to their core many of those who still bear the label of that great organisation.

What humiliations have we not endured ! And yet, while unlettered people in remote hamlets were ready to defend their homes, hearths and honour with their lives, the so-called institutions of democracy were paralysed into inaction and became mute witnesses to one of the greatest frauds of recent history. That falsehood could have flourished for nineteen months without any great challenge is a greater infamy than that falsehood was practised. And the partners in the greatest crime against our people, with a dishonest posture of outraged morality, denounce the release of those who had the courage to stand up and fight even by violent means It is an equal tragedy that such release should be defended on any ground other than that the men released were not criminals in any sense of the term but soldiers in the battle against despotism. "I would risk violence a thousand times", said Gandhiji, "rather than risk the emasculation of a whole race". Have we forgotten Gandhiji's words that a citizen who barters with a state that has become lawless or corrupt shares its corruption or lawlessness?

"Fearlessness is the first attribute of spirituality; cowards can never be moral. Where there is fear, there is no religion", said the Mahatma. And yet cowardice is presented as morality to the extent that a resister is paraded as a criminal. And these ignoble men have now summoned up enough courage to defend those who had murder in their hearts and minds and eyes.

THE recent election marks a break with tyranny and all that went with it. In many ways the national scene in 1977 was similar to what it was in 1947. To pretend that it is anything less is to indulge in self-deception. Let no one be apologetic who had any share, violent or non-violent, in resistance to tyranny and in bringing about its end. Let us show the traducers and calumniators to be what they are—partners in a treasonable crime against our country, treasonable in the moral, if not in the legal, sense.

The ordinary people of this land have given us an opportunity to "recollect in tranquility". The Rowlatt Bills had not done one thousandth of what the Emergency did. And yet, at Gandhiji's call, the nation, from end to end, rose against that black bill, with shouts of *na appeal, na dalil, na vakil*. How was it then that a proposed constitutional amendment seeking to im-

munise for all time an individual from legal action for any crime, past, present or future, did not evoke a protest in the country and received near unanimous support from those who claim to be heir to the Indian National Congress of Gandhiji's days? Were not these people themselves emasculated, smothered, stifled and silenced to a "dumb anguish of terror"? How many in the country protested when Parliament was insulated from the people through a rigid censorship of its proceedings ?

LIKE thief in the night, the Emergency robbed this land and its people of its most cherished treasure. In the first few days of this dreaded exercise, people were arrested at random in government offices and at bus stops, chartered buses carrying employees back home were diverted to police stations, houses were raided, and a general atmosphere of terror created, backed by a high powered propaganda of falsehood.

And yet this country appeared to be prostrate to the extent that the Rt. Hon'ble Michael Foot (belonging to a party claiming to be a party of revolt) and the "egregious Baroness of Ashbridge made bold to suggest that the attack on the basis of our existence as a democratic nation had people's backing.

We witnessed the sorry spectacle of the officials and even a Chief Minister keeping silent when they were told by a wise Minister that even *High Courts* have no business to pass *illegal* orders and these orders need not be obeyed. How did the lawyers bring themselves to arguing that a detenue can be starved to death or even be shot while in detention? How did the highest court of law in the country persuade itself to accept the technicality that a citizen of our republic did not have a common law right to life and liberty and that a perfectly lawless state was perfectly compatible with our republican, democratic constitution based on the principles of liberty and justice?

Our sensibilities were so dulled that we could not react violently against a near fascist regime producing a film defaming its political opponents as fascists and criminals. How did we become insensitive to the vulgarity of a young man being paraded round the country with high dignitaries kneeling before him and with offices being closed to honour his arrival? Officers administrators, engineers, doctors and media men readily agreed to demolish poor people's homes, sterilise compulsorily the aged and the young after being taken to the camps as animals are taken to the butcher and publicise all this as the work of a new messiah.

The terrorising of the people, and institutions of democracy, the devaluation of the Cabinet, Chief, Ministers and organs of administration and justice were followed by an increase in the tempo and variety of falsehood The first year of the Emergency was presented as the year of fulfilment and the Emergency itself was projected not as a regrettable necessity (if at all) but as a historic achievement. The arrogance of a person was presented as "Thunder of Freedom" and one who seemed to have learnt little from the letters of a father was portrayed as teaching history to children.

AND then the ordinances, the laws, orders and constitutional amendments ! An Emergency, proclaimed ostensibly for meeting a particular situation, was used to alter the basis of our polity in an atmosphere of creeping terror, of emasculation of public opinion, of smothering of dissent, of the frenzied display of self-glorification, megalomania and the glorification of a family.

Eminent men, voicing their concern, found that their letters were not answered. Letters from Members of Parliament about ill-treatment, harassment bordering on sadism, deaths in detention were filed away. And can one still claim that one was not aware of what was happening? What did Parliament do when the High Courts had found the argument of the prerogative to kill even illegally as a "starting proposition"?. Was not Government permitted to get away with the arguing before the Supreme Court that such a prerogative was not outside the constitutional framework—the prerogative of lawless government, in short?

How did the urban intelligentsia react to all this ? Can all of us say that we did not make money on the side or advance our cause basking in the sunshine of rationalisation of and support to a regime of vengefulness, deceit and incapacity even for basic decency? Did we not find smug comfort in the sanctuary of conformism, toadyism and dishonest partnership with the wildest excesses of fantastic lawlessness? Did not journalists, lawyers, businessmen, professors, officers vie with one another in the affirmation of the social validity of personalised government as the ultimate of socialist wisdom? Did we not speak of the Emergency as the answer to the poor man's prayers when it was the rich who benefited and it was the poor who were not only victimised but even deprived of the right to be heard? Would the present atrocities on Harijans have come to light if they had occurred (as they did occur) during the Emergency?

OVERNIGHT, we had a breed of defenders of order, discipline, rural poor and dispossessed and crusaders against blood suckers—most of them bloodsuckers themselves, who made a neat pile out of litigation, lecture tours abroad, toadyist painting and mushrooming journalism, stemming from emergency patronage not to speak of those who held on to their badges of "honour" and accepted positions to Government juries, panels, advisory boards and other subtler forms of buying the loyalty of journalists, professors, lawyers, poets, writers, artists, businessmen, trade unionists and a whole lot of men without truth, honour or self-respect.

This was the great infamy of the Emergency—the cowardice and untruth and aggrandisement and toadyism of the intelligentsia class. This is what "freedom" and "development" had done to this class. With "freedom" we lost our capacity for moral and intellectual courage and spiritual humility A strange assertiveness came upon us robbing us of the excitement of intellectual and moral challenge, the ability of striving and groping for the truth and the adventure of ideas. Where, in bondage, there was torment of the soul, now, in "freedom", there is the swagger of the body. The intelligentsia, once noble and fearless, is now lost in conformism and self-seeking "Development", far from ending material destitution, has brought about India's spiritual destitution also Men are gripped by fear. We seem to be living in a prison called "freedom" and through development, so called, we seem to have strengthened the prison walls of comfort, to an extent that we do not know how to break out of this prison and what it is to be free Men, who were once brave in struggle, have now become cowardly in the sanctuary of quiescent acceptance

And there is often a posture of outraged conscience (which normally should have been as sensitive as a sunburned neck) just as was seen in the hue and cry about "*vichar*", as though there are not enough facts to conclude, not merely to infer, that murder was only one

step away. "Rationalists are admirable beings; rationalism is a hideous monster", said Gandhiji. We have become so steeped in rationalism, not rationality, that the fact of a judge visiting another late in the night and mentioning a rumour does not appear to us to be unusual and we demand proof of malice aforethought. Similarly, the arrests, the letting loose of terror, transfer of judges, concealed and not so concealed threats to them even by the highest executive, the arrogant response of silence to letters from the tallest of men, the immunising of individuals from law, the argument that men and women in this country can be deprived of life and liberty even without the sanction of law, the deaths in detention without even relatives being told of the circumstances of their death, summary punishment far worse than under the Rowlatt Bills, the frequent talk of a sinister plot to kill a Minister as a dress rehearsal to kill someone much higher in the hierarchy, the persecution complex of being encircled and threatened, "scenting danger in every honest speech, detecting conspiracy in every combination and inviting violence from the people in order to crush them" (to use the words of the Motilal Nehru Committee), the repeated demonstration of an ability to commit the greatest excesses and yet assume a posture of wide-eyed innocence, and finally the talk of the unfinished task of vanquishing an imprisoned and manacled opposition—what else remained to vanquish them? All this, it seems, is not enough proof of a relentless logic!

THIS is the great infamy—the partnership of the intelligentsia and people's representatives so called with tyranny and falsehood and the subsequent posture of outrage when the criminals are exposed for what they were and are. Now the talk is heard of too many enquiries and commissions, instead of anger that the perpetrators of the greatest crimes against the country put on the sham appearance of pilgrimage to a saint—who was treated no better than others during the emergency—and exploit the ferment in the country to create an impression that trains and planes do not run on time, that the harijans have lost their saviour and that the messiah must return. We must remember Nuremberg, we must remember the trials in modern Greece. The least that we should do is to ensure that the kind of crime that was committed against this country shall not pay. If we are not careful, we may even be told that there never was an emergency except as a fiction in our mind. And like General Dyer who was given a purse by the unrepentent sections of the English people, the criminals in this country may also be rewarded, if we do not wage a sustained battle against any condoning of the crimes against our democracy.

Tomorrow is uneasy. The problems of this country are not easy to solve. Youth is in ferment. Social tyrannies continue to flourish. There is mass poverty. Prices are not likely to come down in any appreciable measure. There is crime. There is a rat race for emoluments. The intelligentsia can be written off as a community with any ethical fervour. The pressures of the urban parasites will make rural uplift difficult. The people are impatient.

Is there not an objective chance of a cry that democracy cannot deliver the goods? Are there not people just waiting in the wings to take up this cry?

There will always be strikes and agitations in a democracy, more so in a country seeking to emancipate the people from the thraldom of poverty and injustice. Do we meet them with brutality, subscribe to the theory "that once the press is suppressed, there will be no agitations", curb the people's liberties and opt for strong government, which is a euphemism for despotism?

THE threat is real. A dangerous theory gained round that democracy and civil liberty are incompatible with solial justice, that internal danger, supposed or real, can be met only with an emergency of the most fearful kind; that poverty can be ended, chaos averted and production increased only by muffling the press, arresting people stealthily, spreading terror, building up the cult of personaltiy, uttering falsehoods, brutalising the people, torturing them in person, emasculating the judiciary and insulating Parliament from the people. What else is the meaning of the argument that the Emergency was necessary and only its excesses deserve to be condemned?

The Emergency provisions of the Constitution should be abolished or drastically amended. Hitler's example of using the constitution to destroy it, let alone our national parallel, should have long before taught us a lesson. But more than an amendment of the Constitution, the fibre of our people and the human quality of our intelligentsia should be strengthened. We must, of course, demonstrate—not out of vengeance but out of a commitment to some basic values— that perversion will not pay and those who pervert, terrorise and use the apparatus of power for falsehood and self-perpetuation shall be judged by the severest tests and shall pay the price, without merely feeling "utter, utter relief". But we must do more,. We must revive the glorious days of the Gandhi era, when this country and its intelligentsia preferred fearlessness and sacrifice to economism, consumerism and parasitism.

The Emergency was the logical culmination of thirty years of decadence of the urban middle class, fashionably mouthing slogans of Gandhism, socialism and progressivism while wallowing in the mire of modernisation of consumption. Our middle class has long since ceased to be a pace-setter class and has become a camp-follower class. Their self interest has become so much a part of their being that they do not even realise the hypocrisy of their tongue-in-the cheek concern for the poor and the down-trodden. They forget that they are part of the process of exploitation, the apparatus of tyranny.

Those in authority must remember that they were voted to power not in an ordinary election but on the crest of an elemented fervour. The lesson for them is that undue dependence on an aggrandising bureaucracy and an unethical class of urban "intellectuals" and greivance-ridden, demand-oriented organised sector of business, industry and employment is the surest way of digging their grave, disappointing once again the long-suffering noble people of this land and deepening India's moral, spiritual and material destitution. The combined urban class is the biggest enemy of the half-starved, seminaked people who have neither food nor the ability to fight for it, who have no lobbies, who have lived without a hope.

FINALLY, those who believe they can serve in small measure their hapless brethern, should preach with Tagore, that "the late events have conclusively proved that our true salvation lies in our own hands" and say with Mahatma Gandhi that "our salvation and its time are solely dependent upon us".

—R K

THE DEMOCRATIC PROCESS—1

Not a Mere Exercise in Management

Dr. V.M. Dandekar

THE DEMOCRATIC process in the economic sphere has often been misunderstood and misrepresented to mean an unrestricted right to private property and unrestrained operation of the doctrine of *laissez faire*. This is, of course, not correct.

The democratic process cannot remain unconcerned about the concentration of economic power in the hands of a few. It cannot also remain unconcerned about the lot of the poor who, in a poor country, are, indeed, in the majority.

But in their desire to prevent concentration of economic power and in their concern for the poor, democracies have often permitted enormous concentration of politico economic power in the hands of a few unscrupulous self-speaking politicians, with the consequent expansion of the bureaucracy and its arbitrary power over the economy. This undermines the very democratic process.

In the economic sphere, the democratic process, then, consists in positively promoting and strengthening a decentralised structure of decision-making in which innumerable individuals, voluntary associations, co-operatives, corporate bodies and statutory democratic authorities may actively participate

Negatively, it must prevent the emergence of monopoly power whether of the capitalist or of the organised labour. It must avoid expansion of bureaucracy unless it is essential. It must also keep a close vigilance over the activities and affairs of the politicians who, in league with the monopolists and bureaucrats, are prone to seize politico-economic power and undermine the democratic process.

Let me illustrate. Consider the ceiling on agricultural holdings. This has become so much a part of public policy that one does not realise that it accords a very special and arbitrary treatment to one category of the means of production, namely, agricultural land Besides, the particular ceilings imposed are essentially arbitrary.

Distribution of the surplus land is at best arbitrary because those who are supposed to get the land often have neither the means nor competence to cultivate. By and large, the entire operation is fraught with petty bureaucratic corruption and political fraud

Contrast this with the proposed agricultural holdings tax It does not impose an arbitrary ceiling on land holdings. But it creates pressures for a redistribution of land in the desired direction.

Futile Exercise

With a progressive tax, a larger landholder will find it much less profitable to keep a hectare of land than a small holder will find it to add a hectare to his land. But the decisions to sell and buy are made by the persons concerned and governed by the efficiency of cultivation and incidence of taxation It keeps the role of the bureaucracy and the politician to a minimum.

Or consider the legislation of minimum wages in agriculture. This has been a meaningless and administratively wasteful exercise because it is not possible to enforce a minimum wage unless there is an obligation to give employment.

Contrast this with a rural employment guarantee programme It automatically ensures minimum wages in agriculture. Besides, it will gradually eliminate the very small and uneconomic holdings because such small and uneconomic holders may prefer wage-employment and may, in due course, withdraw from agriculture.

This is good for them and good for agriculture. It has been a futil exercise trying to settle everybody o small uneconomic holdings.

The same is true of a great deal o make-believe selfemployment i many village industries, artisan occupations, and the newly expandin tertiary sector represented by th roadside tea shops

Many of the self-employed i these categories do not make a minimum income and may prefer wage employment if guaranteed for minimum wage. There is no reaso to be sorry about this.

Past policies and programmes t create self-employment have expanded bureaucracy, have create political vested interest and have don little to the people except to mak them hopelessly dependent upon th petty bureaucrat and the pettie politician.

Consider another instance, namely distribution of essential commodities of mass consumption such a foodgrains. There is little doubt tha this cannot be left entirely to th operation of the private trade.

But the alternative is not necessarily its bureaucratic and politica management as the past policies an practice seem to have assumed. Suc management has proved to be bot expensive and inefficient It has discouraged quality-grading and standardisation so essential to improve service, to the consumer and bette return to the producer

Even more undesirable has bee the manner in which prices and movement of essential commoditie across the country have become subject of political bargaining.

An alternative is a public distribution system in which bureaucrati control and political interference i kept to a minimum; which is sufficiently decentralised to leave th decision-making to a large numbe of autonomous public marketin organisations and which functio essentially on the principle of th market. This is feasible The democratic process must seek such solutions

In business and industry, the democratic process must have a two fold objective: (1) to prevent monopoly conditions (2) to decentralis industrial and business managemen It should be recognised that i certain industries, because of technology, large investment and long gestation period, monopoly condition become inevitable But rather tha trying to regulate them, the govern ment should take them over an manage them as public utilitie

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Where monopoly is unavoidable, it should be a public monopoly,

Minimum Need of the People

In many service industries such as rail, road, air and sea transport, banking and insurance, post, telegraph and radio communication, and power and irrigation, centralised management is justified on these grounds The democratic process must minimise political interference in the management of these sectors and improve their efficiency

Secondly, it must expand these activities of the government to other areas such as provision of drinking water, sanitation and public health facilities particularly in the rural areas. These are essential minimum needs of the common people and the democratic process must give them the highest priority.

The second objective of the democratic process is to democratise industrial and business management Firstly, it must promote and strengthen appropriate consumers', producers' and workers' cooperatives. Secondly, it must promote workers' active participation in management. What is being done is trivial At best, it has brought the collective bargaining to the board room

Conditions in public sector undertakings are no different and it has become clear that the mere act of nationalisation or the mere fact of the capital being socially owned does not alter the relation between the management and the workers

For a meaningful participation of workers in management, the workers must participate in the ownership of the equity capital of the firm. The democratic process must initiate the necessary process.

For instance a beginning may be made by issuing bonus shares to the collective account of workers whenever bonus shares are issued to the ordinary share-holders of a firm It is only through such a process that the workers interests will be gradually identified with the interest of the firm and workers will begin to participate in its management meaningfully.

Collective bargaining is part of the democratic process and the workers have a right to strike in order to press their legitimate demands and grievances; but they have no right to stop work and production. Importance of keeping the production going needs no emphasis.

As the economy develops and becomes more complex, several sectors and several industries become interlinked so that stoppage of work and production in one affects the production and employment in several others No section of the society can have such right to hold the rest of the economy to ransom. A mechanism must therefore be found to keep the production going without denying the workers' right to strike.

Workers' Right to Strike

If conditions of strike emerge, notice of strike will be given and conditions of strike will be simulated except that production will continue. The workers will not receive wage nor will the management be entitled to profits during the period of strike

This, not the stoppage of work and production, is the essence of strike. The wages and profits during the period of strike shall be credited to a separate account and may be used for such purposes as paying wages during a period of lay-off caused by circumstances beyond the control of the particular firm, as for instance, power-shortage

It is thus that we concede the democratic right to strike but prevent the undemocratic practice of holding the whole society to ransom by stopping work and production

Income Distribution

In the field of planning, the democratic process must concentrate on achieving an income distribution which will assume a minimum living to everybody

Instead the planning effort in the past has been spent on making demand projections and, on that basis, allocating investment and then trying to channelise private investment in the planned direction through an elaborate system of licensing and regulation This has been a futile exercise. It is wasteful when, as often happens, the demand projections go wrong because the planned rates of growth and the desired changes in income distribution do not materialise

The system has provided, in the main, a forum for an intimate and day-to-day contact of the private business and industry with the bureaucracy and the politician lending to corruption and, in the final analysis, to the control and regulation of government by the big money and undermining of the entire democratic process.

Ironically, it is the democratic power structure as it has emerged during the past 30 years which has undermined the democratic process in the country. To restore democracy, this power-sructure must be attacked at its source, demolished and got out of the way. That source is the profits of political office. Without their abolishing, it is futile trying to restore democracy

Profits of Political Office

Profits of political office can be abolished only politically, that, is by agreeing to a code of conduct In a democracy, the essential requirement of a politician is that he must be accountable to the public and that, therefore, the public must be informed authoritatively about his affairs. His life must be an open book above public doubt and suspicion. Only those who are willing to abide by this requirement may aspire for democratic leadership.

More specifically, two conditions must be met. Firstly, the wealth and incomes of all politicians from top to bottom must be open to public gaze and scrutiny. Secondly, persons having wealth and income above a certain prescribed limit must be disqualified for standing for any election and holding any political office

These requirements may sound Platonic. But they, indeed, are the essential conditions for restoring and preserving the democratic process Evidently, the politicians are unwilling to accept voluntarily this democratic code of conduct The people must press that the code of conduct be written into the constitution. □

I impeach him in the name of the people of India, whose rights he has trodden under foot, and whose country he has turned into a desert. Lastly, in the name of human nature itself, in the name of both sexes, in the name of every age, in the name of every rank, I impeach the common enemy and oppressor of all.

—Edmund Burke
Impeachment of Warren Hastings

Fear not the tyrants shall rule for ever, Or the priests of the bloody faith; They stand on the brink of that mighty river, Whose waves they have tainted with death.

—Shelley, Rosalind and Helen.

Think'st thou there is no tyranny but that of blood and chains? The despotism of vice, The weakness and the wickedness of luxury, The negligence, the apathy, the evils Of sensual sloth—produce ten thousand tyrants.

—Byron

Failure of the Intelligentsia

Prof. P.G. Mavlankar

THE DEMOCRATIC PROCESS at the root is a human process. If one goes deeper, one can see it as a spiritual process too. As such, it is an exhilarating exercise and a refreshing experience. I do not propose to dwell on these philosophical and pure realms of this vast and exceedingly fascinating subject

I would like to put across in a nutshell a few thoughts and some concrete suggestions regarding the various facets of the democratic process, the different levels at which it operates at home and abroad, and some of the major challenges it faces in modern times.

In doing so, I shall confine myself to the political aspects of the democratic process, although one should well remember that democracy is not just a matter of governance of polity, but much more, an attitude of mind and a way of life. Viewed from its entire context, therefore, the democratic process at heart is a civilising force.

Let me at the outset stress the inevitable gradualness of the democratic process. There are no short cuts in a democracy, and nothing worthwhile is achieved or arrived at too swiftly either. The democratic process is essentially one of evolution and growth. In that sense, it is in tune with nature and natural instincts and urges.

Its various operational levels are—severally and collectively—spiritual, human, social, political, economic, educational, judicial and cultural. In a democracy, both the individual effort and social endeavour are interwoven in the democratic process, thereby promoting individual interest as well as social welfare.

Ideally, the democratic process must operate at individual as also institutional levels. In actual practice, however, the institutional apparatus dominates, often reducing the individual and his striving to almost a cipher.

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When an individual becomes a non-entity and finds himself to be of little or no relevance to the community and its well-being, he grows increasingly indifferent and in the end apathetic. This disinterest of the individual constitutes one of the perennial challenges to democracy. No country in the developed or the developing world has as yet tackled this problem squarely or successfully.

To most citizens in most countries the actual operations of governance in their respective politics—whether they be democracies or non-democracies—remain distant, if not foreign, and this creates a threat to the smooth functioning of a democracy, for the gulf between the rulers and the ruled remains as wide and even unbridgable as ever.

That is why the first task as well as the last target in any democracy is to make the individual citizen take continued interest in his polity, and then enable him further to participate in the processes of development of the polity of which obviously he is a part. The persons engaged in the democratic process in several countries during the last many decades have been doing precisely this sort of political exercise.

The several facets of such democratic functioning can be seen in the healthy structures or otherwise of the peoples' participation at the grassroot and constituency levels through their representative bodies, from the Panchayats upwards to Parliament.

The more significant other operational agencies in a democracy are the political parties and pressure groups including trade unions and specialised or expert bodies or associations, the free and critical press with all its force and numbers, the multifaced communication media like the Radio and T.V., various public institutions which are at once learned and seasoned, scores of voluntary social institutions or groups and the intelligentsia and the elite at the universities and similar academic centres.

All these bodies throw open the creative and restless souls in a given society, and ultimately it is such individuals with a concern for human values and social welfare that strengthen the democratic process in any country. As a result the presence of the spirit and practice of dissent helps fortify the democratic process.

Overcoming Ignorance

The continued existence of widespread illiteracy does not pose so great a problem as the deliberate or complacent manner in which deep-rooted ignorance is allowed to stay, if not grow. It seems to be there is almost a vested interest in keeping the people ignorant.

I am far from suggesting that we should tolerate, and not attack, the evil of illiteracy. Of course, everybody must learn the 3 R's—reading, writing and arithmetic. But a mere existence of cent per cent literacy is no gurantee that a people will think and act democratically.

The basic tool is the assured free and continued supply of information and facts as well as news and views, to the people at large It is the absence or at any rate the frequent interruption, of such a facility that bothers me, for it finds the countless commoners, having an inevitable common sense, being deprived of the tools with which they could form opinions and come to a judgement on this or that public issue

The other aspect of the matter that worries me is the fact that the voters in our developing democracy are not being seriously educated. The nineteenth century slogan in Britain was "Let us educate our masters". But we have been exciting and inciting, rather than informing and educating our masters.

The said spectacle, therefore, is that a lot of demagogy goes on in the name of democracy and, instead of talking sense to the people, most of us try to fool and occasionally even cheat the people. How many of us have looked at a general election as a splendid and valuable opportunity for an intimate and active dialogue between the rulers and ruled, between the political parties and the voters' indeed, among the various peoples themselves?

Apathy of the Educated

Six general elections have been held during the first 27 years of our democratic republic. Our voters have happily shown an increasing awakening and a growing alertness. The last Lok Sabha election in March this year has been particularly telling and rewarding in exhibit-

ing a tremendously hopeful democratic consciousness of our teeming millions. We must confess that apathy of literate voters, the sheeplike mentality of many of our 'masters,' iritating indifference to public issues and causes shown by so many educated persons, do still pose as acute problems facing the nascent democracy of ours.

In a country like Australia, voting is by law compulsory. I am not sure, however, if such compulsion works or pays. Our endeavour should be to reach the maximum percentage of poll by education and persuasion rather by prescription and legislation. I am also of the view that the voting age in our country must be reduced from 21 to 18. A large number of the countries have already done so, and we need not linger or lag behind in this respect any more.

One serious obstacle in the democratic process is the persistent predominance of 'caste' considerations at various stages of selection and appointment and in the election process itself. The accompanying menaces of 'provincialism' and of 'language' also persist.

The politicians do not enable the people to come out of the caste, sectional and regional and linguistic loyalties; and instead of helping the people to rise above these walls, many politicians often try to turn and tune them to their own narrow and shortlived political advantages. Education does not as yet seem to play its part by providing an effective antidote to all this chauvinism. On the other hand, the sad reality is that the so-called educated amongst us try to exploit the situation and the sentiment to suit their temporary gains.

Critical Public Debate

Another impediment is the inadequacy of a sustained, free, critical public debate in the country. Oftentimes there is no continued ceaseless, concerned and concentrated criticism of the different policies and persons in various spheres of public life.

The role of the intellectuals in this regard is depressingly passive, they have, on several occasions, badly let down the people and on genuine popular causes and issues. The 'fathers' of our Constitution considered the universal adult franchise as an article of faith and they have been by and large vindicated. But the educated and the elite have not come up to the levels of expectation and promise.

That a successful democratic process implies strong and sensible stewardship at several levels is also not fully appreciated. The democracies do also require good leadership. It should not, however, be confused with 'one-leader' frenzy or with 'one-manships'.

Myth of Indispensibility

Arbitrary and authoritarian rule is antithetic to democratic processes, and a strong or stable government is not to be equated with irresponsible or irremovable government. That is why the practitioners of the democratic process always dismiss the principle of the indispensable leader, and insist that hero-worship or personality cult or deification of any individual however great and good is suicidal to democracy.

Any assessment of the democratic process will undoubtedly include a detailed reference to the party machinery, its fabric and functioning. The nature, rise, role and contribution of a political party is crucial if not central to the fruition of the democratic process. But to say that political parties are useful and necessary tools and vehicles in a democracy is not to suggest that they are everything.

Certainly, the political parties are not the be-all the end-all of the democratic process. Parties are inevitably handicapped by several and sometimes severe limitations. By the very nature of things, a party views and represents only a part and no matter how big a part is, it cannot be equated with the whole.

This is why party loyalty must, in the end and whenever necessary, give way to national loyalty; the party interests and the national interests do not necessarily or always coincide. Political parties do undoubtedly make representative government possible and workable but that in itself does not and cannot make the parties infallible and indispensable in everything.

Democracy cannot automatically be linked with economic growth and prosperity, literacy and technology, although each of these is a must if democracy is to survive. What is required basically, however, is a certain sense of democratic values and behaviour amongst all citizens. A certain maturity and a certain wisdom on the part of the ordinary people make the democratic process run well and fast.

Need for Speed and Dynamism

The democratic process, particularly in the developing world, must pick up a certain speed and dynamism; the poor and the hungry cannot and should not wait endlessly or indefinitely. The luxury of the long drawn out processes in a democracy must, therefore, be reconciled with the life and death problems of the countless commoners.

All said and done, however, I am not at all pessimistic about the out look for democracy in India and the world. Given an informed, educated and enlightened public opinion, and using a wide range of flexible and yet fundamentally sound techniques of the democratic process, there is nothing we cannot achieve in a decent and democratic way, and in a civilised and cultured climate.

Indeed, I feel optimistic and even enthusiastic about the good prospects of gradual growth of genuine democracy on our globe. And, because democracy alone contains a self-corrective mechanism and since the safety valve is built in the democratic process itself, the only effective remedy at any time of diminishing democracy, remains the instant injection of a greater doze of democracy in the body politic of the nation. ☐

"By political independence I do not mean an imitation of the British House of Commons or the Soviet rule of Russia or the Fascist rule of Italy or the Nazi rule of Germany. They have systems suited to their genius. We must have ours suited to ours. What that can be is more than I can tell. I have described it as Ramarajya, that is, sovereignty of the people based on pure moral authority...

"My conception of Ramarajya excludes the replacement of the British army by a national army of occupation. A country that is governed by even its national army can never be morally free and, therefore its so-called weakest member can never rise to his fullest moral height...

"India is essentially Karmabhumi *(land of duty) in contradiction to* bhogabhumi *(land of enjoyment)...*

"The State represents violence in a concentrated and organised form. The individual has a soul, but as the State is a soulless machine, it can never be weaned from violence to which it owes its very existence." **Mahatma Gandhi.**

THE DEMOCRATIC PROCESS—3

Economic And Social Facets

Nikhil Chakravarty

THE DEMOCRATIC process has a wide spectrum covering practically every aspect of modern society political, social, economic and judicial. The struggle to attain democracy is as old as history.

Harold Laski underlines the rich content of democracy when he says: "Men have found its essence in the character of the electorate, the relation between government and the people, the absence of wide economic difference between citizens, the refusal to recognise privileges built on birth or wealth, race or creed. Inevitably, it has changed in substance in terms of time and space".

The aspect of the democratic process in which I am very much interested is its social implication. In reality, the social facet of democracy cannot be taken up in isolation from its other aspects. In the Athenian democracy of ancient Greece, for instance, the remarkably advanced type of political democracy was based on the economic and social foundations of slavery, and even justice would not regard a slave as having any rights as such when he was the property of his master, the citizen.

Struggle Against Inequality

In some form or other, this social inequality has coexisted with political democracy up to the modern times. When Abraham Lincoln had to wage a full-scale civil war, it was the social, economic and judicial aspects of democracy that were involved in the struggle of the American people for getting over one of the anachronisms of history, namely slavery.

At the same time, wage-slavery in some form or the other has persisted and still persists over a large part of the world today. And it is in the context of our own endeavour to over-come this in our democratic structure that the inscription of socialism in the definition of our Republic gains significance : it sets the goal, though the journey to reach it cannot but be arduous.

The social facet of democracy involves many issues. From the end of the Middle Ages, the struggle for religious equality formed an important chapter of Europe's struggle for democracy.

In our country while the beginnings of political democracy could be discerned in the republican states of ancient India, it was Buddhism which gave a tremendous impetus to democracy in the social sphere. However, the reverse process set in with the introduction of the hidebound caste system which prevails even to this day as a scourge of the Indian socio-economic life.

Today, we have to realise that the commitment to secularism cannot be regarded in isolation from the attainment of political democracy. The concept of religious equality, which is the essence of secularism, is an integral part of the over-all democratic process.

It is important to note in this context that the struggle against social inequity has generally been conducted as an appendage to the battle for political democracy. In our country when the struggle for independence assumed the character of a nation-wide mass movement under Gandhi's leadership, there came up almost inevitably the question of the untouchable's right to enter the temple.

As we have moved forward towards the establishment of political democracy, particularly with the introduction of universal suffrage, one can no longer ignore the claims of the Harijan not only to social equality in terms of equal opportunity, but to a better economic deal, for instance, for the agricultural labourer.

Much in the same way, the democratic process in the social sphere manifests itself in the form of the struggle for women's emancipation. The suffragette movement in Britain came as a follow up of the establishment of political democracy.

In our country, the participation of women in the freedom struggle—which is but another name for the assertion of political democracy—resulted in complete equality in the matter of adult franchise. And as our political democracy advanced there came important measures such as the right of wome to property, marriage and divorc laws.

In recent years, the demand fo equal pay for equal work has bee met at least on the plane of legis lation and there have also bee enacted special labour laws guaran teeing protection to working women

Expansion of Social Services

Democracy in the social spher cannot materialise without the ex pansion of social services, such a facilities for health and housing In this sphere, the advanced de mocracies of the West have take steps only in the postwar years that is, long after the establishmen of political democracy. In the con ditions prevailing in our country the progress in this branch has bee admittedly inadequate considerin the vast dimension of the problem

With this comes the question o provision for universal education fo all, so that the privilege of th affluent to the acquisition of know ledge could be broken down. Thi is a task to which those in authority whatever their political complexion provided they have a commitmen to democracy, can hardly overlook

At the same time, it needs to b underlined that the promotion o education by itself cannot furthe the cause of democracy unless an until its economic counterpart, th ensuring of employment for th educated is assured. Here is case of the interlinking of the soci and economic facets of democrac

However, this is not a proble peculiar to our country. In th economically advanced countries o the West, it is felt in acute form For example, in the USA, th coming up of the Black Power ha reinforced the entire movement o the under-privileged for a bett socio-economic order.

No society, however develope can attain real viability until th millions within it can find a stak in its continuance, and this will b possible only when the soci economic rights of the common ma are not only recognised but enforce

This question has an importa bearing for our country, committe to a democratic order. On th political plane, our democracy h proved its mettle as the recent gener election has once again demon trated. There is, however, a lo way to go in the economic and soci spheres before we can claim to be fully grown democracy.

The wide disparity in income th prevails in our country offen

against the concept of economic democracy. And until this gap between the have and the have-not is reduced, the social facet to Indian democracy can hardly be strengthened. Education, housing, health are no doubt important aspects of our national programme demanding urgent attention. But these by themselves cannot be sustained unless and until the grinding poverty that faces the majority of our people is overcome.

The Human Personality

The question inevitably arises as to whether such an objective can be attained within the given socio-economic structure. This is a question which has been the concern of many thinkers, political leaders and economists in different countries. In the West from Keynes to Galbraith, there have been a number of attempts to refashion the capitalist structure to meet the urgent social needs of the times.

In our developing economy with our commitment to democracy, secularism and socialism as enjoined by the Constitution, the need to refashion our socio-economic structure is imperative, because political democracy, even if it is protected from serious aberrations, as experienced during the recent emergency, cannot by itself ensure the full flowering of this great nation's many-splendoured genius

For that, the economic and social facets of our democratic process have to be given the fullest scope. Without the necessary socio-economic content, democracy can be only a facade for perpetuation of various forms of exploitation We cannot escape the injunction that democracy in the ultimate analysis has to ensure the eminent dignity of the human personality in all its aspects.

People's Participation

The democratic process, however, cannot be sustained by mere legislative measures or executive action. What is needed is the active involvement of the public. It is only a vigilant public opinion that cannot only enjoy but guard the precious assets of any democratic order. This is particularly necessary in the sphere of social functioning of democracy.

Whether it is the law against untouchability, or it is the law against discrimination against women, there is possibly no way of enforcing them without the people at different levels, both in the cities and in the countryside, coming forward and helping in the enforcement of such measures. A community which depends only on the legislature and the executive to run a democratic order can never get an enduring system of democracy.

It is here that various non-official bodies, political parties and mass organisations as also the various media of mass communication can and have to play a definite role. The backward element in our social structure can only then be awakened and the obscurantist element eliminated. Eternal vigilance is the price not only of liberty but of democracy as well □

THE DEMOCRATIC PROCESS—4

Liberty Lies in the Hearts of Men

H.R. Khanna

DEMOCRATIC PROCESS has various facets, the important being social, political, judicial and economic

I shall deal with the judicial aspect This would necessarily call for proper appreciation of the role of courts, nature of judicial review and importance of the rule of law in a democratic set-up under a written Constitution like ours

The Constitution is our supreme law or, as the Germans describe it, the basic law It is the provisions of the Constitution which constitute the touchstone of judging the validity of the other laws

All legislative enactments and executive orders have to conform to the provisions of the Constitution. In case there is any conflict or inconsistency between a legislative enactment or an executive order and the provisions of the Constitution, the legislative enactment or the executive order to the extent of inconsistency and repugnancy would be void and unconstitutional

Who then is to judge whether a legislative enactment or executive order is or is not in consonance with the provisions of the Constitution? This task has been entrusted by the Constitution to the courts

In discharging this function and adjudicating upon the constitutional validity of legislative measures and executive orders the courts exercise what is called the power of judicial review.

A lot of heat and controversy is sometimes generated regarding this power of judicial review, but if we understand the true nature and importance of judicial review, we would find that so much of heat and controversy is wholly uncalled for. To explain the nature and scope of judicial review, I can do no better than to repeat what I said in Kesavananda Bharati's case.

In exercising the power of judicial review, the courts do not and cannot go into the question of wisdom behind a legislative measure The policy decisions have essentially to be those of the legislatures. It is for the legislatures to decide as to what laws they should enact and bring on the statute book

Function of the Courts

The task of the courts is to interpret the laws and to adjudicate about their validity. They neither approve nor disapprove legislative policy The office of the courts is to ascertain and declare whether the impugned legislation is in consonance with or in violation of the provisions of the Constitution

Once the courts have done that, their duty ends The courts do not act as super legislatures for, if they were to do so, the courts will divert criticism from the legislative door where it belongs and will thus dilute the responsibility of elected representatives of the people.

While exercising the power of judicial review, the courts cannot be oblivious of the practical needs of the government. The door has to be left open for trial and error. Constitutional law like other mortal contrivances has to take some chances. Opportunity must be allowed for vindicating reasonable belief by experience.

The Constitution, it may be added, is not a historic parchment in a glass case. It is a continuous process of delicate governmental adjustments In dealing with the provisions of Constitution, the courts have to

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take account of the day before yesterday in order that yesterday may not paralyse today. They have also to take account of what they decree for today in order that today may not paralyse tomorrow.

The Constitution of India ushered in, as would appear from its preamble, a democratic republic. Democracy throws a great measure of responsibility upon the citizens. Where the people do not take a continuous and considered part in public life, there can be no democracy in any meaningful sense of the term.

The grandeur of the aims of democracy is matched by the difficulties of their achievement. Democracy is a continuous and ceaseless process or, to use the words of Frankfurter, it is a beckoning goal, not a safe harbour.

Likewise, freedom is an unremitting endeavour, never a final achievement. Democracy furnishes the political framework within which freedom and liberty can and should thrive most generously. Democracy in which the spirit of liberty does not reside is a dead house.

It is axiomatic that eternal vigilance is the price of liberty. Liberty, it has been said, does not exist only in the laws, which are always more or less badly executed, but chiefly in the constant habits of the nation.

Rule of Law

Learned hand has put the same idea in words which since then have found an echo in numerous writings when he said "I often wonder whether we do not rest our hopes too much upon constitutions, upon laws and upon courts. These are false hopes; believe me, these are false hopes Liberty lies in the hearts of men and women; when it dies there, no constitution, no law, no court can save it; no constitution, no law, no court can even do much to help it While it lies there it needs no constitution, no law, no court to save it".

While talking of liberty, we must not also forget the warning of Burke when he said that people never give up their liberties under some illusion. The true danger is when liberty is nibbled away for expedience and by parts.

A very important postulate for the success of democracy is the rule of law. A wind of iconoclasm today sweeps the minds and the gods we worshipped till yesterday are being dethroned from the minds of people one after the other.

It is precisely in moments like these that the rule of law acquires added importance, for it is the rule of law upon which depends the existence and orderly progress of a stable society. Laws embody a code of self-discipline which a nation speaking through its representatives adopts for itself and enforces through the machinery of the courts.

Man may be a little lower than the angels. He has not yet shaken off the brute, and the brute within is apt to break loose on occasions. The rule of law provides an anchorage in the lives of individuals as also in the storms and tempests which sometimes engulf a nation.

The rule of law also constitutes a shield against the whims and caprices of an individual or a group of individuals. The rule of law is the antithesis of arbitrariness Since the dawn of civilisation, the choice before mankind has been between two different points of view, namely, rule by will or rule by law.

In the aggregate, the choice has been in favour of the rule of law for experience has taught us that if ordinary men were allowed to rule by will alone, the interests of the community would be sacrificed to those of the ruler.

On occasions, we have slipped back into government by will, only to return again, sadder and wiser, to the rule of law when hard facts of human nature demonstrated the essential egoism of men and the truth of the dictum that all power corrupts and absolute power corrupts absolutely

Index of Free Society

The rule of law is now the accepted norm in all civilised societies. It is indeed regarded as the index of a free society Even if there have been deviations from the rule of law, such deviations have been covert and disguised for no government in a civilised country is prepared to accept the ignominy of governing without the rule of law.

Although the content of the rule of law is different in different countries, everywhere it is identified with the liberty of the individual It seeks to maintain a balance between the opposing notions, individual liberty and public order.

In every State the question arises of reconciling human rights with the requirements of public interest. Such harmonising can only be attained by the existence of independent courts which can hold the balance between the citizen and the State and compel governments to conform to the law.

An Aid to Progress

The rule of low is not the enemy of progress, nor is it an ally of moribund past or a handmaid of reaction. Its object is to introduce smoothness in the act of change, to prevent upheavals and eliminate jolts in the onward march of society, to synthesise it with stability, to set up rapport between the past and the present and to project such rapport into the future.

When wisely and imaginatively employed, law is far more than an instrument of command; it is organised society's principal resource for the engineering of that widespread and supportive public assent the true consent of the governed without which great social initiatives never really get off the ground.

Democracy can survive and flourish only if there be due deference for the rule of law Democracy postulates that everybody should be under the law, none above it. Government under the law means that the power to govern shall be exercised only under conditions laid down in the Constitution and the laws

Law thus emerges as a norm limiting the application of power by the government over the citizen or by citizen over their fellows. At the same time that the law enforces duties, it also protects rights.

PROTECTOR OF CITIZEN'S RIGHTS

Government under law thus seeks the establishment of an ordered community in which the individual, aware of his rights and duties, comprehends the area of activity within which, as a responsible and intelligent person, he may freely order his life, secure from interference from either the government or other individuals.

One of the great tasks which the framers of the Constitution have to face is to provide for checks and balances lest there should be too much concentration of powers in one individual or one group of individuals

In framing a government which is to be administered by men over men, the great difficulty lies in this. You must first enable the government to control the governed; and in the next place oblige it to control itself.

A dependence on the people is, no doubt, the primary control on the government, but experience has taught mankind the necessity of auxiliary precautions. At the same time we have to ensure that there are no obstructions to govern and to govern effectively.

(Contd. on Page..23)

District Planning And The Sixth Plan

Dr. D. Bright Singh

The sixth five year plan will have a bias towards development of agriculture and allied sectors. The programmes of development will be so drawn up that their implementation shall contribute to the improved well-being of the rural population, to the attainment of higher levels of employment and to overall economic growth. Furthermore, it would aim at securing the co-operation of the people at the formulation as well as the implementation stage of the plan. This means that planning should be broadbased and it should be from below.

If planning is to start at the grass roots level, then the districts, villages and taluks must be made the primary units of planning In fact, the sixth five year plan will have to be based on district plans which should contain detailed programmes of development for each district. The importance of district planning lies in the fact that it would take into account the needs of the people and the resource potentialities of each district, and what is most important, it would create a sense of responsibility on the part of the people who would be made to feel that they have a stake in the proper utilisation of the resources of each district and each village. For this reason, the implementation of the plan will be easier and more effective than if it were made to appear as an imposition from above.

Most of the Indian states have by now set up planning bodies to assist the government in planning work—in drawing in the five year and annual plans for the state District planning will be the direct concern of the states and their planning agencies will have to work out a satisfactory method of using district plans as the basis of the next five year plan.

First, the scope of district planning is to be defined. There are certain sectors or areas of development which directly concern a district there are other areas which are of state-wide importance. Agricultural development, minor irrigation, animal husbandry, fisheries, education, village and district roads, public health, etc., come under the first category. To the second category would belong items like railways, power development, national highways, development of ports and harbours, etc. District planning should obviously cover all the sectors which come under the first category. As regards areas of development which are of state-wide importance, planning is to be done at the state level, but the economic impact of such projects on the districts is to be properlye investigated and studied. On the average, the outlay on items under the first category amounts to about two-thirds of the total plan expenditure of a state

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Fixing the Outlay

It is necessary to determine the total plan outlay for each district, that is, for items under the first category mentioned above and also to apportion the outlay for each district among the various sectors of development

To begin with, the total plan outlay for each district can be fixed only tentatively Let us assume that a state's sixth plan would invovle an outlay of the order of Rs. 1,500 crores Of this, the items under district planning would be roughly Rs. 1,000 crores. This amount may be distributed among the districts on the basis of their population (per capita outlay should be the same in all the districts).

This, however, is only the first step and the figure may be taken as a rough norm. In fixing the outlay, which may be higher or lower than the tentatively fixed amount, we may have to consider some aspects For instance, if the present per capita expenditure on category-I items is low in one district compared to others, it is only fair to make the allotment a little more liberally in its case. Similarly the needs of the people in each district indicated by the social welfare facilities available may have to be considered for fixing the rank of a district in respect of social factors. The indicators are : number of houses per lakh of population, number of primary health centres per lakh of population, number of primary schools, middle and high schools and colleges per lakh of people in relevant age groups and the rate of population of scheduled castes to the total population.

Again, economic factors would indicate the level of material well being of the people and also the potentiality for development of a district. The position in this regard is reflected in district income, per capita income, proportion of agricultural and industrial income to total income, number of emloyed people, proportion of employed to employable people, number of houses, length of surfaced roads, area irrigated, area under cultivation, electricity consumption per head, number of bank branches, average size of agricultural holdings etc. The potentiality for growth of a district is indicated by the availability of natural resources—mineral and forest wealth—climatic and soil conditions, entrepreneurial talents and economic overhead facilities. Given the economic and social indicators it would be easy to fix the rank of a particular district If a district has a low rank but has a large potentiality for development, there is a strong case for increasing the per capita allotment, and *vice versa* if the factors indicate an opposite condition

While data relating to economic and social conditions may be found in published reports and official records, it will be necessary to collect information about per capita expenditure in each district on items of development coming under category-I from Government officers at the head of several departments It may be a little difficult to allocate the total expenditure on the different sectors such as industries, agriculture, education, animal husbandry etc, among the districts, but if up-to-date accounts are maintained at the head office it would certainly be possible to get more or less a correct view of the position.

Allocation Among The Districts

The basic principle to be observed in allocating plan expenditure among the districts is that there should be balanced development among them. This would mean that special consideration is to be given to those which are economically and socially

worse off than others.

It is necessary to fix an upper limit to the outlay for each district to ensure that the projects drawn up for each district are realistic and within the resources constraint. Otherwise, overambitious plans will be prepared incorporating a large number of the proposals suggested by district representatives without regard to the financial implications.

Such an upper limit can be fixed by ranking each district with reference to per capita expenditure incurred in the past two years and the economic and social indicators. There will thus be three ranks corresponding to these three factors. Based on these, a composite indicator for each district can be determined. If this composite indicator is below the average it means that the district concerned deserves special consideration in fixing the outlay and *vice versa* This may be illustrated by a hypothetical example of ten districts A ······· J.

District	Per capita expenditure	Social factors	Economic factors	Total 2+3+4	Composite indicator
(1)	(2)	(3)	(4)	(5)	(6)
A	2	6	3	11	2
B	9	9	7	25	10
C	6	7	4	17	6
D	1	2	6	9	1
E	10	5	9	24	9
F	8	4	8	20	8
G	5	3	5	13	4
H	3	8	1	12	3
I	7	1	10	18	7
J	4	10	2	16	5

It is possible to evolve a formula on the basis of which the allocation can be made in an objective manner. If the sixth plan of a state is about Rs 1,500 crore and the development schemes under district planning amount Rs 1,000 crore, 40% (or Rs 400 crore) may be distributed taking into consideration the present per capita expenditure; 30% (Rs 300 crore) on the basis of economic indicators, and the remaining 30% (Rs 300 crore) on the basis of social indicators.

When the total development outlay for each district is fixed, the next thing to do is to apportion this among the different heads of development. Using this scheme of outlay as a framework, detailed plans are to be drafted with reference to the needs and resources of each district and the development schemes proposed for each district and consistent with the sectoral development programmes drawn up by the heads of departments.

At the close of each five year plan, the heads of departments-education, public health, roads, agriculture, industries, animal husbandry, fisheries etc—draw up tentative schemes of development concerning their respective sectors to be incorporated in the next five year plan. These schemes would cover a few or more of the districts. The total allotment for a sector, say for instance, construction of village roads, is first determined and the amount used up in a particular district depends on the length of roads falling within that district area. Similarly for the other sectors. The point to note here is that the plan concerns road construction as one sector, and that the needs of the district as a special unit are not given the importance which it deserves.

Starting from Below

So far as district planning is concerned, the process is to start from below Thus in the case of village roads, we have to consider the present length of roads in a district, the need of repairs and improvement. need of new roads, the effect of investment in road construction on employment, production, education. marketing etc in the district and so on. Here attention is focussed on the integrated development of the village of district This applies to all the development programmes of the district and the combined programmes aim at developing the district as a whole.

In order to prepare a district plan we need, firstly, full details regarding the economic and social conditions of the district, its natural resources, and the availability of economic and social overhead facilities and secondly, proposals and suggestions for the development of the various economic sectors of the district. As for the first, a great amount of information is available in published documents and also from official records. Material will be supplied also by the district planning cells which will have to be set up under the control and guidance of the district collectors. Also where necessary, fresh information has to be gathered by means of direct investigation.

In drawing up programmes of development for each district, importance is to be attached to the proposals coming from village officers, the planning cells and local representatives and leaders, industrialists, agricultural experts etc. The state planning body should be in direct touch with these agencies, visit the villages in order to understand their problems and create in the villagers an enthusiasm for development work.

The facts and figures and the schemes for development put forward by the districts should be studied, scrutinised, checked and processed by the planning agency. Taking into account the total amount allotted for each district, priorities will have to be fixed for each sector, outlay is to be determined for each sector and the projects selected with reference to this allotment.

Adjustments with Sectoral Plans

The final stage in this exercise will be the meshing of the programmes drawn up for each district with the programmes drawn up for each sector by the heads of departments. Thus road construction programmes or projects concerning development of small industries or animal husbandry should be made to fit in with the programmes drawn up by the Public Works Department or the Industries Department or the Director of Animal Husbandry for the whole state This obviously imply adjustments to be made in district plans as well as sectoral plans. It is important to ensure that there is no duplication or overlapping. If this is done properly, the total cost of the different district schemes spread over the districts but coming under the same major head such as education or agriculture would add up to the cost figure indicated in the relevant sectoral programmes. The sum of the outlays on district plans and the plans relating to projects which are outside the scope of any particular district but which concern the state as a whole will represent the total size of the state's plan. □

Some Thoughts on the Sixth Plan

Kalipada Basu

APPARENTLY it is too early to discuss the sixth five year plan which is scheduled to be commenced on and from April 1, 1979 But our past experience shows that the drafting of a plan is not an easy task. The original draft of the fifth plan was prepared in a hurry. As a result, some changes of the original draft had to be made later, and the final plan was approved by the National Development Council in September, 1976, more than two years after the due date There is now a discussion on the nature, progress and limitations of the fifth plan. The gains of the earlier plans cannot be consolidated if the subsequent plan is not started in time

After 30 years of independence, and 25 years of planned economic development, the political conditions of the country have now changed. The new government is committed to re-examining the fifth plan. But three and half years of the fifth plan have already passed. It would, therefore, not be proper to spend more time by reopening the controversy on the fifth plan. We should, instead, concentrate on the sixth plan which will be significant in changed political situation. The Janata Party government is pledged to removing poverty and unemployment in ten years. The new government will have to draft the sixth plan to achieve its political objectives. The sixth plan is significant from the economic point of view, because even after long years of planning, extreme poverty prevails among the masses. It is stated in the fifth plan that the minimum consumption need of the masses, at the 1972-73 price level is Rs. 40.60, and this is said to be the poverty line. According to the findings of the Planning Commission about 30 per cent people of the country live below this poverty line. The percentage is much higher in the rural areas.

National Income not an indicator

It is true development has taken place in the last 25 years. According to an estimate the national income at 60-61 prices rose by 83 per cent from the beginning of the first plan up to the end of the fourth plan. It is expected that national income will increase by 22 per cent during fifth plan. The stress on the increase of national income, by any means, led to emphasis on heavy industries. But it should be noted that economic development and social justice are different things Rapid economic development or higher national income cannot remove poverty, if the increased income is not equally distributed among the masses. The increased production or income was not properly distributed among the people, and for this reason the poor remained poor and the rich became richer Besides, the heavy or the large industries are capital-intensive As a result, employment opportunities, proportionate to capital investment in these industries, were not created in the country. Industrial development was also concentrated in some urban areas.

If we sincerely desire to remove abject poverty the present outlook and policies will have to be changed, and the sixth plan drafted accordingly. We should remember the past lapses, the abject poverty of the masses and the changed political situation of the country while drafting the sixth plan.

We have to give top priority to agriculture (including irrigation), cottage and small scale industries, rural roads, electricity in rural areas and primary education. In our economy agriculture plays an important role About 68 per cent of the people of our country live on agriculture, and about 46 per cent of the national income comes from agriculture Agriculture also supplies raw materials to major industries of the country Cottage and small scale industries employ about two crore and 50 lakh people. Handlooms alone absorb, about 50 lakh rural people. Agriculture and small scale industries are labour-intensive and are decentralised. Transport and communication is a major bottleneck of rural development. The villages should be linked with the major business centres and towns. Construction of metalled roads in villages will automatically help develop the transport system. Electricity is necessary for the development of irrigation system, and cottage and small scale industries.

Even after 30 years of indepen dence about 70 per cent of the peopl are illiterate. Illiteracy is also on of the causes of poverty. It shoul be the policy of the Planning Com mission not to lay great stress o heavy industries in the sixth plan The aim should be not to expan the large industries, but to utilis the production capacity fully.

Order of Allocation

In the final draft of the fifth plar total outlay was estimated to be Rs 69,300 crore. On the basis of th doubling principle the total outla of the sixth plan should be aroun Rs. 1,38,000 crore. The fifth plar public sector outlay is estimated t be Rs. 42,300 crore, that is, 60 pe cent of the total outlay. In the fourt plan public sector outlay was 6 per cent. If we assume that the publi sector outlay in the sixth plan wil also be 60 per cent, then the tota public sector outlay in the sixth plan will be Rs. 83,000 crore. If we wholeheartedly want to fulfil the two main objectives of the sixth plan, as stated earlier, we will have to spend at least 75 per cent of Rs 83,000 crore on agriculture, irrigation, small and cottage industries, rural roads, rural electricity and primary education The total allocation on these six sectors will be about Rs. 62,000 crore Considering the relative importance of these sectors it is suggested that 40 per cent (Rs. 24,800 crore) should be earmarked for agriculture including, irrigation, 20 per cent (Rs. 12,400 crore) for cottage and small scale industries, 15 per cent (Rs. 9,300 crore) for rural roads, 15 per cent (Rs 9,300 crore) for rural electricity and 10 per cent (Rs. 6,200 crore) for education.

It should be mentioned here that in the fifth plan only 16 per cent of the total public sector outlay has been allocated for agriculture including irrigation. Only 3.3 per cent is earmarked for education Out of the total allocation for education only 32 per cent has been sanctioned for primary education In a country where about 70 per cent people are still illiterate, further expansion in the field of higher education is discriminatory against the people who are deprived of primary education. Higher education is also unnecessary in the present context of our economy. It is therefore, suggested that at least 75 per cent of the total allocation on education in the sixth plan (Rs. 4,650 crore) should be spent for the expansion of primary education. □

New Priorities

Virendra Agarwala

THE PRIME MINISTER has claimed that the Union Budget for 1977-78 provides a new direction that is sure to revive the economy and arrest the rising trends in prices It is also directed to solving the problem of rural unemployed and to boosting agricultural output. He is quite optimistic that it could improve the economy all round, the dependence on foreign assistance will decline and our efforts to create an atmosphere of Swadeshi are sure to bear fruit.

The share price index (base 1969-70-100) which rose from 137.2 on March 2, 1977 to 150.9 on the date of the budget declined to 150 0 in the post budget trading The hesitant mood in the share market shows a lack of firm activity; the bearish trend in share prices now witnessed may gather further momentum thus reflecting a rather cool reaction to the budgetary proposals The buoyancy in equity prices noticed during the pre-budget days was mainly due to the budget expectations But the budget proposal went against the investors' expectations and the market failed to react It is obvious that the share market experts have ignored some of the salient features of the budgetary exercises and the context of several constraints within which the Finance Minister was required to operate

The market has also felt indifferent to the concessions made available to the corporate sector. The share market seems to be particularly disappointed by the absence of any positive tax reliefs for the revival of industrial development, though the Finance Minister had emphasised the need for mobilisation of resources through saving for investment. The increased surcharge rate on personal incomes from 10 to 15 per cent has denied the tax payers the benefit of the higher exemption limit from Rs. 8,000 to Rs 10,000. The extension of the Compulsory Deposit Scheme further restricts the flow of savings into equity investment. The earlier expectation that the exemption of dividend income up to Rs. 250 from deduction of tax at source would give rise to larger investment, though in small lots, has been belied It is almost certain that the market would gradually settle down and stabilise around the current levels with some institutional support

The FICCI has expressed its disappointment over the budgetary proposals and has felt that they will have little or no influence on resolving the current economic problems facing the country's economy For quite some time, several industries have been languishing, the demand is not expanding, input costs have gone up, savings and investment rate is low and there is shortage of working capital and the interest rate is excessively compounded by high corporation taxation.

Extension of investment allowance, the modification to the Capital gains tax and tax facility to carry forward losses of sick units in case of merger will surely create some stimulus in the present difficult conditions The list of low priority industries includes a number of labour intensive industries which should be eligible for investment allowance The budget should have provided adequate assistance to industries suffering from low capital utilisation. As new industrial units are not in a position to compete because of steep increase in project cost, it calls for a reduction in import duties on capital goods, a more scientific application of excise duty rebate, lowering of the overall rate of corporate taxation and removal of taxation of inter-corporate dividends. It is also believed that the incentives for investment will be counter-weighed by increases in personal taxation of incomes and wealth as also the withdrawals of the benefit to companies of deposit of the surcharge with the IDBI.

Bleak Industrial Prospects

The Government leaders seem to be determined to bring about rural industrialisation but the budget has not indicated the clear guidelines which could have encouraged the entrepreneurs to move into the rural areas. The policy makers at the top have laid greater emphasis or introducing a law prohibiting big industry from entering areas where small scale units can do the job as well. Creation of future capacity would be tested on this touchstone alone. If this objective is to be pursued vigorously, the Finance Minister's claim that the growth rate in industrial production would be maintained at the previous year's level would be meaningless. The growing industrial unrest and poor prospects on the power front have made the industrial climate rather bleak There is a consensus developing gradually that the plan priorities need be so rearranged that decentralised, labour intensive-small industry based on local resources and simple technology could produce essential goods of mass consumption in the rural areas. It will not only generate employment potential but will also help in creating purchasing capacity among those now living below the poverty line.

The total plan outlay of Rs. 5,790 crore on the central account includes Rs 35 crore for khadi and village industries, Rs 20 crore for handlooms and Rs 4 crore for agriculture There are, of course, tax concessions favouring small units. Units producing up to Rs one lakh will be exempted from the new excise on hand and small tools, electric lights, fittings and polishes The increased general excise of two per cent will not apply to units not using power and to units with an annual turnover not exceeding Rs 30 lakh. Certain types of handloom yarn have been exempted from duty and such exemption has also been extended to the powerlooms. Small units making watches will get increasing concession The only important small industry that will bear a higher tax is the making of branded beedies but the additional tax burden will be very small.

The most important direct tax measure to help small industry as well as rural development is the rebate to be given to the small industrial units going to the rural areas after June 30, 1977. The other direct tax concessions like investment allowance or rebates for using indigenous knowhow are available to all qualifying industries irrespective of size. But in the field of small industry and rural development, fiscal policy will commonly be a (*Contd. on Page..*23)

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SCHUMACHER ON BUDDHIST ECONOMICS

The keynote of Buddhist economics is simplicity and non-violence. From an economist's point of view, the marvel of the Buddhist way of life is the utter rationality of its pattern amazingly small means leading to extraordinarily satisfactory results... .....

For the modern economist this is very difficult to understand. He is used to measuring the 'standard of living' by the amount of annual consumption, assuming all the time that a man who consumes more is 'better off' than a man who consumes less. A Buddhist economist would consider this approach excessively irrational : since consumption is merely a means to human well-being the aim should be to obtain the maximum of well-being with the minimum of consumption. Thus, if the purpose of clothing is a certain amount of temperature comfort and an attractive appearance, the task is to attain this purpose with the smallest possible effort, the holp of designs that involve the smallest possible input of toil. The less toil there is, the more time and strength is left for artistic creativity It would be highly uneconomic, for instance, to go in for complicated tailoring, like the modern west, when a much more beautiful effect can be achieved by the skilful draping of uncut material. It would be the height of folly to make material so that it should wear out quickly and the height of barbarity to make anything ugly, shabby or mean.........

As physical resources are everywhere limited, people satisfying their needs by means of a modest use of resources are obviously less likely to be at each other's throats than people depending upon a high rate of use. Equally, people who live in highly self-sufficient local communities are less likely to get involved in large-scale violence than people whose existence depends on worldwide systems of trade......

From the point of view of Buddhist economics, therefore, production from local resources for local needs is the most rational way of economic life, while dependence on imports from afar and the consequent need to produce for export to unknown and distant peoples is highly uneconomic and justifiable only in exceptional cases and on a small scale......

Just as a modern European economist would not consider it a great economic achievement if all European art treasures were sold to America at attractive prices, so the Buddhist economist would insist that a population basing its economic life on non-renewable fuels is lering parositically, on capital instead of income. Such a way of life could have no permanence and could, therefore, be justified only as a purely temporary expedient . .

While many theoreticians-who may not be too closely in touch with real life-are still engaging in the idolatry of large size, with practical people in the actual world there is a tremendous longing and striving to profit, if at all possible, from the convenience, humanity, and manageability of smallness. This also is a tendency which anyone can easily observe for himself......

The conventional wisdom of what is now taught as economics by-passes the poor, the very people for whom development is really needed. The economics of gigantism and automation is a left-over of nineteenth-century conditions and nineteenth-century thinking and it is totally incapable of solving any of the real problems of today An entirely new system of thought is needed, a system based on attention to people, and not primarily attention to goods (the goods will look after themselves). It could be summed up in the phrase, production by the masses, rather than mass production .....

If we ask where the tempestuous developments of world industry during the last quarter-century have taken us, the answer is somewhat discouraging. Everywhere the problems seem to be growing faster than the solutions. This seems to apply to the rich countries just as much as to the poor...

The amount of real leisure a society enjoys tends to be in inverse proportion to the amount of labour-saving machinery it employs...

The prestige carried by people in modern industrial society varies in inverse proportion to their closeness to actual production...

The present consumer society is like a drug addict who, no matter how miserable he may feel, finds it extremely difficult to get off the hook. The problem children of the world-from this point of view and in spite of many other considerations that could be adduced-are the rich societies and not the poor...

The slogans of the people of the forward stampede burst into newspaper headlines everyday with the message, 'a break through a day keeps the crisis at bay'...

Any third-rate engineer or researcher can increase complexity; but it takes a certain flair of real insight to make things simple again...

The new thinking that is required for aid and development will be different from the old because it will take poverty seriously. It will not go on mechanically, saying: 'What is good for the rich must also be good for the poor'. It will care for people from a severely practical point of view. Why care for people? Because people are the primary and ultimate source of any wealth whatsoever. If they are left out, if they are pushed around by self-styled experts and high-handed planners, then nothing can yield real fruit...

The real task may be formulated in four propositions: First, that workplaces have to be created in the areas where the people are living now, and not primarily in metropolitan areas into which they tend to migrate ..

Second, that these workplaces must be, on average, cheap

ıough so that they can be eated in large numbers with- ut this calling for an unattain- ble level of capital formation nd imports.

Third, that the production ıethods employed must be re- ıtively simple, so that the dem- nds for high skills are minimi- ed, not only in the production rocess itself but also in matters f organisation, raw material ıpply, financing, marketing, nd so forth.

Fourth, that production should e mainly from local materials nd mainly for local use.

These four requirements can e met only if there is a 'region- l' approach to development and, econd, if there is a conscious ffort to develop and apply what ight be called an 'intermediate chnology'. These two conditions ill now be considered in turn . .

One sometimes wonders how ıany 'development economists' ave any real comprehension of e condition of the poor . . . .

The life, work, and happiness f all societies depend on cert- in 'psychological structures' hich are infinitely precious and ighly vulnerable. Social cohe- on, cooperation, mutual res- ect, and above all self-respect ourage in the face of adversity nd the ability to bear hardship- ll this and much else disintegra- s and disappears when these sychological structures' are ravely damaged. A man is estroyed by the inner conviction f uselessness. No amount of onomic growth can compensate r such losses-though this may e an idle reflection, since eco- omic growth is normally inhibi- d by them . . . .

The problem is not new. Leo olstoy referred to it when he rote : "I sit on a man's back, hoking him, and making him arry me, and yet assure myself nd others that I am very sorry r him and wish to ease his lot y any means possible, except etting off his back." So this is e first question I suggest we ave to face. Can we establish n ideology, or whatever you ke to call it, which insists that he educated have taken upon hemselves an obligation and ave not simply acquired a passport to privilege' ? . . .

—From *"Small is Beautiful"*

THE EVIL IS IN INDUSTRIALISM

There is a growing body of enlightened opinion in the west which distrusts this civilisation which has insatiable material ambition at one end and consequent war at the other...

"I do not share the socialist belief that centralisation of the necessaries of life will conduce to the common welfare when the centralised industries are planned and owned by the State. The socialistic conception of the west was born in an environment reeking with violence. The motive lying behind the western type and the Eastern is the same-the greater welfare of the whole society and the abolition of the hideous inequalities resulting in the existence of millions of have-nots and a handful of haves. I believe that this end can be achieved only when non-violence is accepted by the best minds of the world as the basis on which a just social order is to be constructed. I hold that the coming into power of the proletariat through violence is bound to fail in the end. What is gained by violence must be lost before superior violence ..

"Centralisation cannot be sustained and defended without adequate force. Simple homes from which there is nothing to take away require no policing; the palaces of the rich must have strong guards to protect them against dacoity. So must huge factories. Rurally-organised India will run less risk of foreign invasion than urbanised India well equipped with military, naval and air forces...

"You cannot build non-violence on a factory civilisation, but it can be built on self-contained villages. Even if Hitler was so minded, he could not devastate seven hundred thousand non-violent villages. He would himself become non-violent in the process. Rural economy, as I have conceived it, eschews exploitation altogether, and exploitation is the essence of violence. You have, therefore, to be rural-minded before you can be non-violent, and to be rural-minded you have to have faith in the spinning wheel . . . .

"Pandit Nehru wants industrialisation because he thinks that, if it is socialised, it would be free from the evils of capitalism. My own view is that the evils are inherent in industrialism, and no amount of socialisation can eradicate them......

"I shall work for an India in which the poorest shall feel that it is their country, in whose making they have an effective voice......

"When the Swadeshi mantra resounds in every ear, millions of men will have in their hands the key to the economic salvation of India. Training for this does not require hundreds of years...

"My views on national planning differ from the prevailing ones. I do not want it along industrial lines. I want to prevent our villages from catching the infection of industrialisation. American exploitation has added to the moral height neither of the exploited countries, nor of the exploiting country. On the contrary, it has impeded their march towards spiritual progress, and deadened America's real spirit of philanthropy. A phenomenon like the one that America witnessed cannot happen in India. I mean the destruction of tons of sugar and other agricultural products...

"When production and consumption both become localised the temptation to speed up production, indefinitely and at any price, disappears. All the endless difficulties and problems that our present-day economic system presents, too, would then come to an end ...

"I heartily endorse the proposition that any plan, which exploits the raw materials of the country and neglects the potentially more powerful manpower, is lopsided and can never tend to establish human equality....

Mahatma Gandhi

Inflation: Some General Information

L.G. Bapat

TO 'SAY that inflation is a rapid and substantial increase in prices is generally correct but not always According to Prof. A.P. Lerner, a price rise must be unforeseen and uncorrected. Then alone can it be called inflationary. If a price rise is anticipated, it can be counterbalanced by suitable changes in the rate of interest. So inflation means an unanticipated, rapid and substantial increase in prices above their normal level. Where there are no controls, this definition will hold good. Where controls exist inflation will reveal itself in long queues, black markets, hoarding, speculation etc.

Why does inflation occur? It occurs because the total demand for goods and services is in excess of their total supply. As imports are required to be ultimately paid with equivalent exports, it can be said roughly that we, as a nation, can consume only what we produce. When we *attempt* to consume more than what we produce, there is inflation. It has to be noted here that we cannot, in reality, consume more than what we produce. Therefore, it cannot be the *actual* consumption of goods and services in excess of their production that causes inflation. It is our *attempt* to do so which is the villain of the piece. It is in this sense that inflationary policies are said to be self-defeating In addition to failure, you end up with another ticklish problem on your hands, namely, how to stop prices from rising.

Thus, many developed countries with memories of the great world depression of 1929-33 fresh in their minds and under the influence of Keynes's "General Theory of Employment", attempted to implement policies of full employment. They tried to spend in excess of their resources. Welfare programmes were also chalked out and implemented which added further to the already heavy spending. On the other hand, developing countries like India, newly freed from the yoke of slavery, attempted to catch up with those with an early start in the economic sphere. They prepared blueprints of ambitious economic plans in their efforts to do in a few years what was done over many generations by the developed countries. They therefore, tried to invest more than what they could afford and landed themselves in "inflation". Thus, the malady soon captured practically the whole world soon after the second war Today, inflation has become a global phenomenon. Even the communist countries are not free from it.

How does inflation work itself out? The early economists discussed this problem from a purely monetary point of view. According to them, supply of money is the *only* cause of inflation Thus, Prof. Irwin Fisher in his "Quantity Theory of Money" arrived at the conclusion that if the quantity of money is doubled, the prices will also double Though later economists modified this theory to a certain extent, they maintained the basic idea intact. The only change they admitted was that the relation between the quantity of money and prices is not so exact Besides, Prof. Fisher had specifically pointed out that while calculating the supply of money, not only is the quantity of money issued by the Government to be considered but its velocity too. The effective supply of money is, therefore, equal to the quantity of currency in circulation *multiplied* by its velocity.

An increase in the supply of money may be a *major* cause of inflation, but certainly it is *not the only cause* as the classical economists seemed to believe. When first prices rise due to an increased supply of money, it raises the cost of production of various goods. Workers demand a higher wage as they find the maintenance of their usual standard of living difficult due to a rise in the prices of consumer goods. So also, the prices of raw materials go up. When thus, the cost of production goes up, to maintain their *usual* margins of profits, the entrepreneurs are forced to raise the prices of their products. In fact, the entrepreneurs would not now be satisfied with the usual margin of profit. A price rise hits them also and, to maintain their standard of living, they now need higher money profits. Hence, the price rise is more than in proportion to the increase in the cost of production.

This means that there is a fresh price rise which leads to a fresh demand for a rise in the wages. This vicious circle moves all over again. Thus, a price rise in one sector affects the prices in other sectors which react again on the former and lead to a further price rise there. The process soon becomes cumulative In this way, inflation raises its ugly head. The *Cumulative* nature of this process is known to be the most important character of inflation, for it indicates that there is no automatic end to this process. It also indicates that to put the process in reverse is an extremely difficult task.

Thus, when the supply of money increases, it raises the total effective demand in the economy and hence the price level. This is known as the demand-pull inflation in the economic jargon. When the cost of production rises, it leads to a rise in the price level. This is called the cost-push inflation. There is a third type of inflation known as administrative inflation in the USA. In oligopolistic economic units, the prices are administered, that is, fixed independently of the factors of supply and demand, in a discretionary manner. Here, the price rise takes place even though the supply of money and the cost of production remain unchanged.

Prof. Charles Schultz has formulated another theory of inflation He assumes that the prices and wages are flexible *only upwards*. In those sectors where the demand increases the prices increase. But the prices do not fall in those sectors where the demand falls, for, the prices are not flexible *downwards* according to his assumption. Thus, a fall in demand leads to a fall in production and employment and not in prices This means that the price level always tends to rise. It does not come down This is exactly what seems to be happening in the developing countries like India at present.

These are essentially purely monetary explanations of inflation The Swedish economist, Prof Hayek, pointed out that inflation is a symptom of disequilibrium in the economy. This disequilibrium

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Will it Eradicate Poverty and Unemployment ?

C. John

THE PEOPLE'S Plan II prepapared by the Indian Renaissance Institute founded by the late Shri M.N. Roy has aroused considerable interest just like the first People's Plan of 1944 by the same Institute. The People's Plan II 1978-79 to 1998-99 has projected a set of priorities different from the priorities of the five year plans that have been implemented in the country. Among the objectives of the Plan are the removal of poverty, generation of adequate employment opportunities and meeting the primary consumption requirements of the country's growing population

Considerable emphasis has been given to resource mobilisation for successfully implementing the Plan. On the basis of past experience it can be safely asserted that whatever be the target for resource mobilisation the government can realise it in view of its vast powers of taxation, possibilities of raising resources from the public sector enterprises by raising the prices or increasing the output; chances of market borrowings, and scope for external resources by trade or aid. On the basis of the working of the five year plans in our country it can be said that the most important aspect of planning is how the resources are utilised and how efficiently the plan projects are executed

If the planned investments in the People's Plan II are compared with those in the fifth five year plan it will be seen that there is less emphasis on industrialisation compared to the emphasis on social services, public utilities, housing for the poorer sections and agrarian economic conditions. The greater emphasis on agriculture is in tune with the Janata Party's policy though the People's Plan does not represent in any way the central government's thinking on the pattern of future plans.

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The total amount set apart for investment in agriculture in the first ten year period from 1978-79 to 1988-89 represents 15.28 per cent of the total plan expenditure while, in the fifth five year plan, the share of agriculture is only 11.82 per cent. Similarly for irrigation and flood control 13.26 per cent allotted while in the fifth five year plan only 8 76 per cent is set apart for the purpose. But when we consider the proposed investments in power generation and distribution there is a big fall from 18 56 per cent in the fifth plan to 10 26 per cent in the People's Plan At a time when the country is suffering from serious power shortages in several regions and after seeing the crippling effects of power shortages on agriculture and industry it is not possible to regard the low priority for power as a proper arrangement. In states like Tamilnadu, Punjab and Haryana, the progress of agriculture is very closely linked with the expansion of power supply Any slowing down of power development would seriously impede the progress of agriculture. If power development is regarded as a necessary part of agricultural development, the proportion allotted to this sector in the fifth five year plan is marginally higher than in the People's Plan.

Need for Industrial Development

The programme for housing the millions of poor people and the proposed expenditure on social services will definitely provide substantial additional employment and will improve the living conditions of people below the poverty line. For the success of these programmes cheap construction materials are essential and for mass production of these items the development of industry cannot be ignored. The development of agriculture also would mean an increase in the supply of inputs by starting factories for that purpose. Expansion of industry cannot, therefore, be accorded lower priority than at present.

It is emphasised in the People's Plan that the state will be increasingly involved in the provision of services and public utilities and will have relatively less to do with industrial growth. This idea may have to be abandoned in favour of a more pragmatic policy of the state entering any particular area where shortages appear because the private sector is unable to expand sufficiently due to either the huge capital cost involved or due to lack of dynamism The provision for transport and communications is placed at 14 21 per cent as against 17.51 per cent in the fifth plan. If the planned increases in agricultural production are not to result in gluts in certain centres as it happened in the case of wheat in Punjab and Haryana and in the case of potatoes in certain parts of Uttar Pradesh following a good crop, it is necessary to have adequate provision for the expansion of transport services

According to the People's Plan the major gains are to be in terms of basic necessaries and social welfare services. Eight items figure in the Plan targets: foodgrains, sugar, gur, vanaspati, tea, coffee, tobacco and cotton cloth. This is not an exhaustive list of basic ne essaries and there are more goods like edible oils and milk which will have to be included Even in these basic items for which shortages have been felt either throughout the last three decades or for brief periods, it should be realised that there were also periods when some of these goods could not find suitable markets for the entire supply For example, one of the problems with regard to handloom cloth almost continuously during the last 25 years and with regard to milk cloth in some years intermitently has been lack of adequate demand. It has to be seriously considered whether the generation of employment and improvement in the standards of life targeted for in the Plan will be adequate to create and sustain enough demand for these goods

The emphasis on small scale industry, while necessary for providing employment for large numbers, raises vital questions regarding the economic viability of the units in this sector. If they have to be always propped up by government subsidies and loans as in the case of cotton handloom industry or if they always work below capacity and produce things at high cost and depend on government help for their survival, they will only add to the burdens on the economy rather than

bring about its healthy growth.

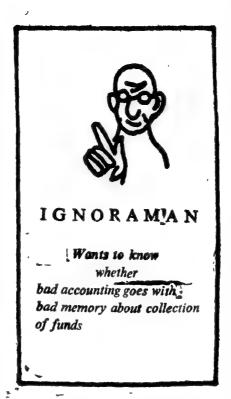
While, according to the population trend projection there will be 888.4 million people in the country, the target has been set at 834.6 million by 1998-99 in the Plan. How this target is to be achieved with the present hostility of the people towards the family planning programme is not clear. In the present context it is better to plan for the normal and natural increase of population. Once the assumptions regarding population growth go wrong all other expectations regarding standard of life also will be upset. If there is any time-bound programme for limiting the population growth, it will kindle the wrath of the people. A voluntary family planning programme will take several decades to make its impact.

In view of all this, it is possible to conclude that the People's Plan may not be able to eradicate poverty and unemployment in the country in the near future. Top priority will have to be given for family planning and the plan should aim at balanced growth of industry, transport and agriculture. □

INFLATION

(Contd from Page..21)

is due to the non-realisation of the expectations It results in real changes in the production and consumption which are not anticipated and hence not intended by the people who undergo them. Thus, workers are attracted by the higher *money* wages and they, therefore, prefer to work harder to enjoying their extra time as leisure, in the hope of raising their standard of living. If they would have been fully aware of the falling purchasing power of their money wages, they would not have probably behaved like this. Thus, to quote Prof. Lerner again, **the people are induced to do things other than what they really intend** (Emphasis original). These real changes constitute inflation, according to Prof. Hayek.

In conclusion, it may be said that no single factor, by itself, creates inflation. All these factors – the excess supply of money, the rising velocity of money, an increase in the cost of production, administered prices, the rigid price structure, and the real changes in the economy – acting together lead to the inflationary conditions. Naturally enough, to control inflation, we shall require simultaneous action on all these fronts To control the velocity of money, the cooperation of the people will be required for. If people saved more, the velocity of money would automatically fall. To control cost-push inflation, the cooperation of workers is necessary for, they would have to increase production at least in the same proportion in which their money wages go up To control administrative inflation, the cooperation of the entrepreneurs would be essential. To expect the government alone to control inflation is to expect the impossible. □

DEMOCRATIC PROCESS-4

(Contd from Page..13)

A weak government, in the words of Burke, is the worst tyranny of all times. It, therefore, becomes essential to provide a proper balance between the needs of effective government and equally effective safeguards against the abuses of administration. It is in the latter context, the context of effective safeguards against the abuses of administration by violation of the provi sions of Constitution and the laws, that the courts come into the picture.

The courts are not, as is sometimes said, stumbling blocks in the way of socio-economic reforms. Their functi on only is to ensure that there is no contravention of the Constitution in the framing of the laws and no contravention of the Constitution or the laws in the process of implementation of the laws by the executive.

Once that is understood we shall appreciate the role of the courts as one of the necessary pillars to support the democratic edifice. □

COMMENTS ON BUDGET

(*Contd. from page..17*)

part of a combined programme of consultancy service, credit facilities, input supply and marketing. The new shift has been widely appreciated but the conflicting statements made by the top leaders have not quite contributed to clarity.

Primacy of Agriculture

The Janata Government is committed to a clean sweep of the Congress government's economic policies and programmes and to evolve new ways for improving the living standards of the vast mass of people. The sixth plan is sure to reflect the Janata Party Government's thinking and priorities. The Janata Party leadership has recognised the primacy of agriculture which implies that the investment requirements of agriculture would be given the highest priority. It clearly means a new direction to the system of planned development. The new government has made increase in agricultural productivity the sheet-anchor of its programme to remove poverty, enlarge employment opportunities and reduce disparities. The budget may not wholly reflect these policies but its formulations are surely in the right direction. The new phase will be marked by a definite shift in terms of strategy and priorities from basic industries in the public sector to agriculture, from centralised planning to district planning and from growing beggary to full employment to all. If planning is to be effectively employed, then the available resources must be properly utilised. Pure drinking water should be made available to all rural areas and the rate of annual expansion of the area under irrigation should be doubled within the next five years. Large scale industrialisation in the rural areas is the key to economic prosperity. Therefore, the budget has rightly formulated priorities which are sure to inculcate a new spirit of self-employment through the process of medium technology in rural areas. □

A Perspective of Elementary Education in Bihar

Dr. G.L.P. Yadava

BEFORE ATTEMPTING a perspective of elementary education for Bihar some important points must be borne in mind. Education is a state subject whereas the allotment of finance to execute the programmes of this sector is approved and finalized by the central government keeping in view the allocations to other states. Secondly, planning in the Centre as well as in the states is an indirect sort of planning in which we try to influence the behaviour of individuals in the desired manner so that the target set may be achieved. The behaviour of the individuals may not be influenced in the desired manner due to various reasons and the targets fixed may not be achieved. We cannot dictate the private individuals under the present framework of Constitution that the targets fixed have to be achieved anyhow. Thirdly, in the past the social services sectors including education have been assigned a comparatively low priority and hence the funds allocated to these sectors are generally insufficient to meet even the minimum needs. The planning experience in our country including Bihar shows that even the insufficient funds allocated are not actually spent over the specified sector like education; they are diverted to some 'core sectors'. These factors naturally have great bearing on planning elementary education in Bihar for which a perspective is attempted below.

Article 45 of the Directive Principles of the Indian Constitution provides that all children in the age-group 6-14 should have *free and compulsory education by* 1960. That year has gone without our being anywhere near the target. Even without the constitutional obligation, it can be shown that the socio-economic benefits of elementary education are many times its cost The benefits will have to be scientifically quantified or at least scientific attempts made to quantify the benefits of spread of literacy, functional literacy of workers in farms and factories, broadening the foudation of further learning, better utilization of material resources etc.

Taking everything into account, the following targets of enrolment may be set for Bihar.

This implies that an additional 54.51 lakh children in primary schools and 35.80 lakh children in middle schools would have to be enrolled during the next two five year plan periods to attain 100 per cent enrolment of children in the age-group 6-11 and 80 percent enrolment in the age-group 11-14 Enrolment of girls has to be given a special emphasis in the years to come.

Requirement of teachers

On the basis of enrolment proposed, the requirement of teachers in schools has been estimated taking into account the existing norm regarding the teacher-pupil ratio, that is 1:40 and two other norms which-ever may be considered desirable depending on the availability of resources—men, material and finance. Other two norms for the teacher-pupil ratio considered are 1:30 and 1:25. The following table gives the requirement of teachers based on different norms:

Thus on the basis of the teacher-pupil ratio of 1:25 nearly 4.5 lakhs (5.99-1.5) additional teachers would be required by the end of the seventh five year plan. Even if it be 1.40, the additional requirement would be 2.25 lakh teachers. If the requirement of teachers on account of death, resignation, retirement etc, is also taken into account, the need works out still to a large number of teachers At the modest rate of 2% per annum this additional requirement in the base year 1973-74 would be nearly 3,000 teachers and in 15 years' time it would certainly be more than

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*The views expressed in this paper are of the author, not of the institution he serves.

TABLE I

(*Enrolment in lakh*)

Year	Enrolment in the age group					
	6-11 (Class I - V)			11-14 (Class VI - VIII)		
	Boys	girls	Total	Boys	girls	Total
1978-79	44.44	22.00 (55.5)	66.44 (81.1)	15.47 (65.0)	4.46 (20.0)	19.93 (43.0)
1983-84	4 .50 (100.0)	45.70 (100.0)	85.68 (100.0)	22.28 (80.0)	9 87 (38.4)	32.15 (60.0)
1988-89	53.60 (100.0)	49.47 (100.0)	103.07 (100.0)	30.17 (100.0)	16.54 (58.3)	46.71 (80.0)

N.B. Figure for other years have been calculated on the assumption that the age-structure of the population remains what it was in 1973-74. Figures in brackets represent percentage.

;,000. Therefore, in the years to)me and before the year 1988-89 ihar has to plan for getting not less ıan 2.7 lakh additional trained ;achers, if not 5 lakh.

At present the State has 112 ementaıy teacher colleges, each ıroling about 100 students. There re some dropouts and failures. Thus ıe outturn of trained teachers from ıese institutions is nearly 8,960 er annum. Even ıf it is assumed ıat they do not migrate to other tates, in 15 years period the State ould have an additional supply of early 1.3 lakh teachers, leaving a ap of at least 1.4 lakh teachers. ın another norm, the gap would be f the order of 3.7 lakhs.

The methods of meeting this addi- onal supply of trained teachers ıay be many. In any case, opening f new elementary training colleges would not be advisable because after 100 per cent enrolment is achieved, those institutions will be superfluous. Therefore, the system of double shifts increasing the number of trainees in a batch, condensed course of training (for instance, 6 months' course in place of the present lengthy course) may be considered. Planning this would require a lot of data which have to be collected.

School rooms

On the basis of the additional requirement of teachers, the additional class-rooms required by 1988-89 may be calculated. In spite of best efforts, about 35 per cent of the primary schools and 40 per cent of the middle schools in the State do not have buildings of their own There were 48,006 primary schools and 8,385 middle schools in Bihar in 1971-72. On this basis the backlog of buildings for primary schools comes to 16,802 and for middle schools 3,354. Thus there is a total backlog of 20,156 buildings.

Besides the existing backlog of nearly 20,000 buildings, as per the existing norm of providing one classroom for one teacher, the additional classrooms required will be at least 2.25 lakhs on the basis of 1:40 teacher-pupil ratio and five lakhs on the basis of 1:25 ratio by the end of 1988-89.

As has been mentioned in the beginning of this paper, the State Government has always assigned a low priority to elementary education.

At 1973-74 prices the salary to the teachers may be calculatted at the rate of Rs 300 per month which totals to Rs 3,600 per annum. Besides this salary amount, Rs 400

TABLE II

Requirement of Teachers in Elementary Schools in Bihar (1978-79 ··· 1988-89)

(*in lakh.*)

Year	Teacher-pupil ratio	Teachers required		
		Classes I-V (primary Schools)	Classes VI-VIII (Middle schools)	Total
	1:25	2.66	0.80	3.46
1978-79	1:30	2.21	0.66	2.27
	1:40	1.66	0.50	2.11
	1:25	3 43	1.29	4.72
1983-84	1:30	2.86	1.07	3.93
	1:40	2.14	0.80	2.94
	1:25	4 12	1.87	5.99
1988-89	1:30	3.44	1.56	5.00
	1:40	2.58	1.17	3.75

N.B. The total number of teachers in the primary schools in Bihar was 99,199 and in the middle schools 50,360 in 1973-74. The total of the two figures above comes to 149,559 or say 1.5 lakhs

TABLE III

Total funds needed for appointment of additional teachers (per the norm 1:40 T.P.R.) and cost of construction of classrooms (additional) during the 5th, 6th and 7th plan

(*Rs. in lakhs.*)

Five Year plan	Additional teachers to be appointed 1:40	Salary cost	Construction of classrooms		Total cost	
		[illegible]	@ 5000 per room	@ 1000 per room	Figs. in 3 plus 4	Figs. in 3 plus 5
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fifth Plan	61,000	24,40	30,50	610	54,90	30,50
Sixth Plan	83,000	33,20	41,50	830	74,70	41,50
Seventh Plan	81,000	32,40	40,50	810	72,90	40,50

per annum per teacher may be taken into account for, medical benefits etc. Roughly the payment will come to Rs 4,000 per teacher per year. In Bihar, generally the teachers are appointed in the last year of the five year plan period. Obviously this is not a desirable thing. However, for the sake of economy and based on the past practice the cost of teachers' appointment may be calculated only for one year, that is the last year of each of the five year plan periods. Similarly, the cost of construction comes to nearly Rs 10,000 per room but if loca/buil- materials are used in roomsl raw dings in place of cement, iron etc. the cost of construction will come down to Rs 5,000 per room. If thatched huts are constructed, the cost of construction may come down to even Rs 1,000 per room but this type of classroom is less durable and the annual maintenance cost will be very high. Therefore, initially Rs 5,000 has been taken as the cost of construction per classroom. There may be some pu ca construction and there may also be some thatched huts but the average Rs 5,000 will take care of these deviations. Alternatively, if all classrooms are constructed using local raw materials, the cost per room may be Rs 1,000 only. The cost of construction has been calculated on these two alternative figures.

Taking into account the backlog of 20,000 buildings the provision for the fifth plan will go upto nearly Rs 38.5 crores as against the original provision of Rs. 91.98 crores including the MNP component estimated in the plan. Similarly during the sixth and seventh plans the estimated requirement of funds for Elementary Education schemes as proposed above will be at least 41.5 and 40.5 crores respectively. The cost may go up to 74.7 and 72.9 crores of rupees respectively. The cost may go up to 74.7 and 72.9 crores of rupees if another alternative of constructing the classrooms is opted for.

Incentive for Students

Besides meeting these costs, there are other problems which must be effectively dealt with, otherwise the increase in enrolments will not have the desired effect. Among these problems, the problem of dropout is the most serious problem. In Bihar out of each 100 students who enter the primary education stream, hardly 22 of them reach the class V stage. Problems like bogus enrolment, neglected girls' education, quality improvement, training of untrained teachers, worsening teacher-pupil ratio, apathy of the parents to send their children to schools etc. deserve our urgent attention Additional funds will have to be made available for taking up these schemes.

It should be noted that under the present laws the State Government cannot force the parents to send their children compulsorily to the school and hence the behaviour of the parents as well as children will have to be influenced by adopting certain schemes like free text books provision, provision of mid-day meals provision of school dresses free of cost to at least certain groups of students, provision of sports' facilities etc. Mere appointment of additional teachers and the construction of additional classrooms will not attract the children to schools in a state like Bihar or for that marte any state in Ind ia and other developing countries unless this is accompanied by incentives for continued stay of children in school. □

Yojana Quiz

What are Dog days?

Author of the Law of Falling Bodies is:
(a) Galileo
(b) Isaac Newton
(c) F. Soddy

Does a river ever flow from the sea into the land?

"To-day machinery merely enables a few to ride on the backs of millions The impetus behind it all is not the philanthropy to save labour, but greed It is against this constitution of things that I am fighting with all my might". Who said this?
(a) Karl Marx
(b) Mahatma Gandhi
(c) M. N. Roy

If the earth is a ball, why does an earthquake shake only part of it?

How does the milk get into the coconut?

SWERS

1. These are the days about the rising of the Dog Star, the hottest per of the year in the northern hemisphere. Roughly they are betw July 3 and August 25.
2. Galileo in 1590
3. At Argostolion, the Capital of Cephalonia, one of the Ionian isla off the West Coast of Greece, there is a phenomenon which practic amounts to this

   On the West side of the harbour is a stream of sea water wh flows at two miles an hour for about 150 feet inland, and then appears amid clefts and fissmes in the limestone rock. Where water goes to is a mystery.
4. (b) Mahatma Gandhi.
5. The earth is made of a great many different parts, including a c of many layers, it is quite possible for that reason to have a disturba somewhere that shook one of these layers against another, with shaking the whole body; and that is the kind of disturbance we earthquake and not an earth-shake.
6. The stuff that is called milk of coconuts is not milk, and has noth about it all like milk, except its appearance. The milk of the coco is simply a fluid formed by the tissue of substance of the nut, and we need not ask how it gets there.

Quotation Box

Ordinary laws should be strong enough to deal with anti-social elements. MISA must be scrapped
—Jayaprakash Narayan

*

President Carter has delivered much less in the area of social justice than Candidate Carter led the nation to expect.
—The New York Times

*

Though Capitalism is dying, I'll admit it's dying a beautiful death.
—Stefan Heym East German writer.

*

The EEC is rather like a brand new Rolls-Royee which doesn't go.
—Christopher price in New Statesman

*

Even under Janata dispensation this is rich man's India.
—Editorial note in Commerce.

*

The assault on the mind's position in human affairs began with the coming of the psychologists.
—Editorial in The Hindustan Times

*

Don't ape west blindly.
--Peter Buddeberg a Munich Architect

*

A man is not satisfied with a full belly of rice. He has a mind and soul and mouth with which to speak.
—Rear Admiral M.H. Khan of Bangladesh

*

Foreign borrowing is an anesthetic so people don't feel the pain of living beyond their means.
—Prof. Andrea Adahl Falldin's Chief Economic Adviser

*

Some people believe of course, that government has gone entirely too far in trying to make life fairer. The formula of best government equaling least government has vanished into the bureaucratic software that produces welfare, food stamps, and unemployment benefits.
—Time

Soviet Economic Assistance

USSR and Developing Countries *by A. Kodachenko; Perspective Publications Pvt. Ltd., New Delhi; Pages 88; Price Rs. 6.*

THIS booklet by a Soviet research scholar working at the Institute of World Economy and International Relations of Moscow, deals with the massive assistance given by the USSR and other socialist states to the developing countries for the rebuilding of their economy and thereby ensuring their economic independence The growing relationship between the Third World and the socialist countries led by the USSR is everyday becoming a decisive factor in the world of today.

In their just struggle the developing states enjoy the support of the Soviet Union and other socialist countries. This is given to them not for any temporary ad hoc reasons. This support stems from the principles underlying Soviet foreign policy

Today the developing states have the possibility of seeking a change in international economic relations such as would make them mutually advantageous for all sides. In extending and deepening their economic ties with the socialist countries, the developing states acquire a powerful means of influencing the imperialist powers and forcing them to make certain concessions. This concerns, first of all, the terms for the granting of aid, credits and the lifting of discriminatory measures in trade.

In a good number of countries the enterprises built with Soviet assistance form the basis of the national economy. Nine-tenths of the volume of economic and technical assistance from the Soviet Union goes into the production sphere, including more than three-fourth, into industry and power generation.

As a rule, the USSR helps the young states to build large industrial plants, pre-eminently in the public sector, which form the core of the relevant branch and the foundation for expanding allied industries. This enables the recipient countries to progressively cut down the import of foreign components and to improve their foreign balances position.

The economically less developed countries of Asia, Africa and Latin America are helped by the Soviet Union primarily in the development of manufacturing light and food industries and agriculture, that is, the industries which give the quickest returns and meet the most vital and urgent needs of the people.

Unlike the capitalist states which have been the "aid-givers" traditionally, the Soviet Union does not own a single project built with its cooperation and has no control over any of them.

As of January 1, 1976, a total of 507 projects, including 208 industrial plants, have been commissioned in the newly independent states with the help of the Soviet Union

How was this historical relation engendered? How did it take shape? What constitutes its basis? What has it in store for the liberated peoples? The author has successfully tried to answer all these questions, with facts and figures, in the booklet.

The development of ever new, diversified, and stable contacts between the developing countries and socialist states brings about new forms of the international division of labour during which the progressive system of international economic relations is undergoing a qualitatively new test.

—**Pritam Lal**

Books

Industrial Finance

Readings in Industrial Finance *edited by Dr. L C. Gupta; The Macimillan Co. of India Ltd., Delhi,* 1976; *Pages viii* + 421; Price *Rs.* 68.

THESE edited papers are primarily meant for the use of college students and, therefore, have been culled from different original sources. The social perspective of the private sector given as the last section of the classified contents starts with a chapter on 'Concentration of Economic Power' by R.K. Hazari in his well known book *The Corporate Private Sector: Concentration, Ownership and Control*, 1966. This is followed by an extract from Gunnar Myrdal's *Asian Drama* (1968) on 'Operational Controls over the Private Sector'. J K. Galbraith's Study *The New Industrial State*, 1967 supplies another excerpt, entitled "The Future of the Industrial System'. These chapters are best read with chapter 14 on 'Organisational Framework for Implementation of Social Objectives', being a summarised version of a Report of a Study Group of the Reserve Bank, 1969.

The book contains 24 other papers categorised under capital market, entrepreneurship, commercial banks, development banks, securities market and foreign private investment. The organisation of the topics with brief editorial introduction to the papers might have been done through a proper introduction rather than in the present manner of prefacing them with a few introductory lines. There is apparently a mix-up in the arrangement of papers and the lack of a subject index adds to the confusion of the readers. The purpose of this collection of papers/extracts might have been better served if the historical accounts had been separated from the present developments in the field of industrial finance.

The reader is forced to conclude that there is yet another instance of using the student's name for bringing out a set of ill-coordinated and ill-edited papers for palpable commercial purposes. It is to be hoped that the author will bring out a closely reasoned study on the topic to suit the present day readership rather than this hotch-potch in the name of 'Readings'. And for this task, the earlier works offer the premise. This book is too highly priced for the students' pocket as well.

—**B.N. Nair**

BOOKS RECEIVED

Eradication of Rural Poverty by *T.S. Avinashilingam, Sri Ramakrishana Mission Vidyalaya, Coimbatore. Price Rs.* 12

Fundamentals of Applied Statistics by *S.C. Gupta and V.K. Kapoor. Sultan Chand & Sons, New Delhi. Price Rs.* 18 50

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Development Notes

FCI Projects to be Completed by 1978-79

The Fertiliser Corporation of India is poised for more than doubling its installed capacity of 7 lakh tonnes of nitrogen by the end of 1978-79. In the same period the installed capacity for P_2O_5 would be expanded by more than ten times, from the present modest capacity of 36,000 tonnes.

A special feature would be the commissioning of two of the country's first coal-based plants at Talcher and Ramagundam during 1978-79. The FCI is already using naphtha, natural gas, power and coke oven gas as feedstocks in its present operating units.

The FCI which at present mainly produces straight nitrogenous fertilizers, with the exception of the Trombay Unit where a complex fertilizer (Suphala) is also being produced, shall also now be producing Tripple Superphosphate at the Sindri Rationalisation Project (1977-78) alongwith additional quantities of phosphatic fertilizers at Trombay IV (1977-78) and in Haldia (1978-79)

During the current financial year (1977-78) the Sindri Rationalisation, Nangal Expansion and the Trombay IV projects would be commissioned, increasing the present installed capacity of 9 lakh tonnes of nitrogen to 11.3 lakh tonnes of nitrogen and 36,000 tonnes of P_2O_5 to 2.61 lakh tonnes respectively.

In 1978-79 apart from the two coal based plants at Talchar and Ramagundam, Haldia and the Sindri Modernisation projects, based on fuel oil, would also be commissioned.

The overall increase in installed capacity during 1978-79 would, therefore, be 7.5 lakh tonnes of nitrogen and 75,000 tonnes of P_2O_5, thereby raising the total installed capacity of the Corporation's units to 1.8 million tonnes in terms of nitrogen and 3.30 lakh tonnes of P_2O_5

The Trombay V project, based on the use of Associated gas from the Bombay High, is likely to be commissioned by 1980. The plant has been designed to use naphtha gas as alternative feedstock This plant is being designed to produce 2 27 lakh tonnes of N per year.

Rural Electrification in Arunachal

A giant hydel project having 1500 KW capacity has been inangurated at Kitpi of Tawang Sub-Division in Arunachal Pradesh. This biggest power project in Arunachal Pradesh will help electrify 113 villages in the rural areas of this sub-division. It will also help establishment of factories mills and industries. At present electrification work is going on in full swing in Lumla area and thereafter similar electrfication will be made in Zamithang, and Sengajong. Besides, this hydel project will also feed a number of Army Units and boost agricultural production.

FEDO Takes up Endosulphan Project

An agreement has been entered into between Hindustan Insecticides Ltd. and FEDO under which FEDO will give consultancy services for the Endosulphan project of HIL at Udyogamandal. The project will cost around Rs. 7 crore. FEDO will, in addition to checking the engineering designs and overseeing the construction of the principal plant, be responsible for the complete engineering procurement and construction supervision of the off-site facilities and township and overall project administration. This is the third major pesticides project that HIL has entrusted to FEDO in the recent past.

Endosulphan is used as an insecticide for paddy, vegetables, fruits etc. replacing endrine because it has got certain advantages over endrine. It is less toxic to human beings than endrine. It is not harmful to bees.

Both endosulphan and endrine are now being imported. The annual production capacity of the new plant will be 1600 tonnes. The foreign exchange savings on account of this new project will be to the tune of Rs. 8.5 crore a year.

New Groundnut Variety Released

A spreading variety of groundnut namely M-13 developed by the Department of Plant Breeding of the Punjab Agricultural University has been released for cultivation throughout the country.

M-13 was tested in the co-ordinated varietal trials for four years at 12 locations throughout the country and invariably showed an average increase of 12 to 41 per cent over the best varieties of the regions. Its seeds are bold and very much suited for export. It has a wide adaptability.

The variety has an average yield potential of 30 quintals per hectare and there is a great demand for its seed. The Vanaspati Manufacturers' Association has shown its willingness to purchase any quantity of this groundnut variety produced in Punjab at a premium of 10 per cent or at Rs. 250 per quintal whichever is more.

In order to get the maximum yield potential, M-13 has to be planted before 20th June when it gets 130 to 135 days for full maturity. Before planting, care should be taken to see that the seed is duly treated with thiram fungicide and 44 kgs of kernels should be used for one acre

India Ranks Ninth in Steel Production

India pushed back four countries in steel production during 1976 to emerge as the ninth largest steel producer in the world. India ranked only 13th in world steel production in 1975. The countries which India has overtaken in terms of total production are South Africa, Canada, Belgium and Spain. What is more significant about Indian steel industry is that the growth in production during 1976 was the second highest during the year, only Brazil having recorded a growth rate of 22 per cent while India recorded a growth rate of 21 per cent.

The growth rate of all other countries in the world during the year under review ranged from two per cent to 0.8 per cent only. The main factor for the high growth rate in steel production in India is the high capacity utilisation by all the plants. Other contributing factors were better technological discipline, research and development efforts in increasing equipment availability and good industrial relations. The public sector steel plants registered an appreciable improvement in productivity during 1976-77. The plants at Rourkela and Durgapur registered an improvement of 11 per cent each over the previous year's figure of ingot tonnes per man year.

The country's total exports of steel during 1976-77 were valued at Rs. 331.9 crore, three times more than in 1975-76. This has made the country a net exporter of steel for the first time.

Record Sugar Production

Uttar Pradesh this year produced 14.75 lakh tonnes the second record production of sugar as against 11.66 lakh tonnes last year. The area under sugarcane production was 28.70 lakh acres as against 30 lakh acres last year. The sugarcane production was 536.60 lakh tonnes as against 503.24 lakh tonnes last year. All the 79 sugar factories—51 in the joint or private sector, 10 in the cooperative sector and the rest under the sugar corporation—had produced more sugar. Two factories—Nadahi in Naini Tal and Hardwaganj in Aligarh district—both in the co-operative sector had started production in the current crushing season. The increase in sugar production was mainly because of several schemes launched by the department. Sugar recovery had also improved from 9.5 per cent to 9 71 per cent.

BHEL Bags Major Saudi Contract

The State-owned Bharat Heavy Electrical Limited (BHEL) has bagged a prestigeous £74 million export contract in Saudi Arabia for the electrification of a whole city on a turnkey basis. This is for the first time that an Indian company has been awarded a contract that too on a turnkey basis in Saudi Arabia.

The contract which has been secured against stiff international competition largely from the developed world marks a major breakthrough for India in its overall export effort. Under the contractual agreement the BHEL is to take up the electrification of the city of Wadi Jizan which envisages the construction of a 35000 kv power station with a diesel base, establishing a transmission network and construction of four sub-stations of 33/13.8 kv each. While the four sub-stations will be designed to supply power to 13 8 kv. distribution network, the construction of 220/127 volts network would also be undertaken The agreement envisages that the BHEL would have to complete the entire project within a period of two and a half years time from the date of the formal signing of the agreement.

IPICOL's New Units

The Industrial Promotion and investment Corporation of Orissa Ltd. (IPICOL) has sponsored three export-oriented processing and freezing plants to tap the vast marine potential of the state.

The corporation will also undertake merchant banking and preparation of a feasibility report for the three projects-Golden Dragon Seafoods Factory Private Ltd., Kalinga Agro Marine Pvt. Ltd., and Paradeep Marine Ltd., It will provide infrastructural facilities to these plants. Their total outlay is about Rs. 1 crore.

The Golden Dragon Seafood will have a freezing capacity of 5.5 tonnes per day, and an ice plant with a daily capacity of 10 tonnes. IPICOL and OSFC have sanctioned term loans for this project, the cost of which will amount to Rs. 41 lakh The factory building is nearing completion at Paradeep

The Kalinga Agro Marine Project, with a capital outlay of Rs. 28 lakh is coming up at Paradeep. It will be a servicing type of industry where shrimps, landed by a loading seafoods exporting company, will be processed.

Paradeep Marine Ltd., has a capacity of 5 tonnes per day for freezing, 10 tonnes daily for the ice plant, 50 tonnes fresh fish-cum-ice store and 150 tonnes frozen store It is coming up in Bhubaneshwar. The total outlay is Rs. 32 lakh. This plant will process the smallest variety of shrimps.

Phulpur Unit By Mid-1979

The Rs. 168 crore Fertiliser Project at Phulpur is likely to be commissioned in the first half of 1979 with a production of 30,000 bags of urea per day.

The project, which is being set up with the assistance of two internationally-famed firms will have a capacity of 5,00,000 tonnes of urea, when in full production

Part of the project's cost will be financed by a World Bank loan of £109 million.

A unique feature of the Phulpur fertiliser project, will be a farmer's training institute along with a highly developed farm of about one hundred acres.

The institute, which is under construction along with the fertiliser plant, will have an auditorium, an exhibition hall, rooms for classes and hostels for lodging.

Nuclear Power Stations

The second unit of the Rajasthan Atomic Power Station at Rana Pratap Sagar is expected to be commissioned by the end of this year. The second unit will have a capacity of 200 MW. The first unit of this station and Tarapur Atomic Power Station in Maharashtra are already under operation.

Four other atomic power stations are proposed to be set up in the country during the coming year The first unit of atomic power station at Kalpakkam in Tamil Nadu with a capacity of 235 MW is likely to be commissioned in 1979 and the second unit of equal capacity two years later Two units of the atomic power station at Narora in Uttar Pradesh are expected to be commissioned in 1982 and 1983 respectively.

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A PROPHECY COME TRUE

"I have known governments lose their heads; I have know a reign of terror being brought about; I have known the best, the noblest Indians, the highest characters amongst us brought under suspicion, standing in hourly dread of the visitations of the C I D. When Government undertakes a repressive policy, the innocent are not safe the innocen then is he who forswears politics, mumbles his prayer and *salaams* all officials . "

"There will be such a lowering of the public spirit, there will be such a lowering of the political tone in the country that all your talk of responsible government will be mere mockery

"You may enlarge your councils, you may devise wide electorates, but the men that will then fill your councils will be toadies and timid men, the bureaucracy armed with these repressive powers will reign unchecked under the outward forms of democratic government

"Much better that a few rascals should walk abroad than that an honest man should be obliged for fear of the law of the land to remain shut up in his house, to refrain from the activities which it is in his nature to indulge in, to abstain from all political and public work

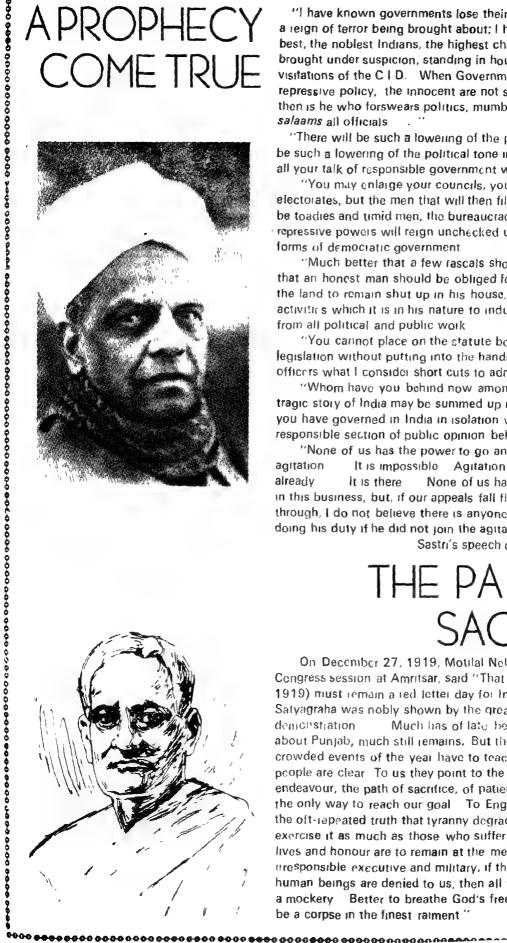
"You cannot place on the statute book such drastic legislation without putting into the hands of over-enthusiastic officers what I consider short cuts to administrative peace .

"Whom have you behind now amongst Indians? The tragic story of India may be summed up in these words that you have governed in India in isolation without having any responsible section of public opinion behind you

"None of us has the power to go and stir up a violent agitation It is impossible Agitation must be there already It is there None of us has had a share yet in this business, but, if our appeals fall flat, if the Bill goes through, I do not believe there is anyone here who would be doing his duty if he did not join the agitation "

Sastri's speech on the Rowlatt Bills

THE PATH OF SACRIFICE

On December 27, 1919, Motilal Nehru addressing the Congress session at Amritsar, said "That day (6th April, 1919) must remain a red letter day for India The spirit of Satyagraha was nobly shown by the great and peaceful demonstration Much has of late been said and written about Punjab, much still remains. But the lessons which the crowded events of the year have to teach us and the English people are clear To us they point to the path of steadfast endeavour, the path of sacrifice, of patience and deed, that is the only way to reach our goal To Englishmen, they teach the oft-repeated truth that tyranny degrades those who exercise it as much as those who suffer under it If our lives and honour are to remain at the mercy of an irresponsible executive and military, if the ordinary rights of human beings are denied to us, then all talk of reforms is a mockery Better to breathe God's free air in rags than be a corpse in the finest raiment "

THE ANSWER TO INSOLENCE

In June 1920, Mahatma Gandhi wrote in *Young India,* "No country has ever risen without being purified through the fire of suffering English and French histories are replete with instances of men continuing the pursuit of their right irrespective of the amount of suffering involved Why should we expect to write our history differently. . The frightfulness at Amritsar drew away public attention from the greater, though slower, frightfulness at Lahore where an attempt was made to emasculate the inhabitants by slow processes But before we rise higher, we shall have to undergo such processes many more times till they teach us to take up suffering voluntarily and to find joy in it I am convinced that the Lahorians never deserved the cruel insults that they were subjected to A wilful ruler was determined to crush the spirit of the people just trying to throw off his chafing yoke And if I am told that all this was due to my preaching of Satyagraha, my answer is that I would preach Satyagraha all the more forcibly for that, so long as I have breath left in me, and tell the people that next time they would answer O 'Dwyerean insolence, not by opening shops by reason of threats of forcible sales but by allowing the tyrant to do his worst and let him sell their all but their unconquerable souls "

Mahatma Gandhi further wrote, "We must be prepared to contemplate with equanimity not a thousand murders of innocent men and women but many thousands before we attain a status in the world that shall not be surpassed by any nation We hope, therefore, that all concerned will *take* rather than *lose* heart and treat hanging as an ordinary affair of life "

He cautioned, "Let us not mistake reformed Councils, more law courts and even Governorships for real freedom or power They are but subtler methods of emasculation The British cannot rule us by mere force "

As the non-cooperation movement gathered momentum, Mahatma Gandhi wrote, "There is little doubt now that the boycott of the Councils will be extensive, if not complete. The students have become disturbed .. .Pandit Motilal Nehru's great renunciation of a legal practice, which was probably second to nobody's, is by itself an event calculated to change ridicule into respect."

Printed at Universal Advertisers (The Unitiser Press) E/2, Jhandewalan Extn., New Delhi-110055 and Published by the Director, Publications Division, Patiala House, New Delhi-110001.

Every palace that one sees in India is a demonstration, not of her riches, but of the insolence of power that riches give to the few, who owe them to the miserably requited labours of the millions of paupers of India
MAHATMA GANDHI

Where The Governor Shall Dwell

"An Indian governor should, in his own person and in his surroundings, be a teetotaller Without this, prohibition of the fiery liquid is well-nigh inconceivable.

He and his surroundings should represent hand-spinning as a visible token of identification with the dumb millions of India, a token of the necessity of "bread labour" and organised non-violence as against organised violence on which the society of today seems to be based.

He must dwell in a cottage accessible to all, though easily shielded from gaze, if he is to do efficient work. The British governor naturally represented British might For him and his was erected a fortified residence, a palace to be occupied by him and his numerous vassals who sustained his empire The Indian prototype may keep somewhat pretentious buildings for receiving princes and ambassadors of the world For these, being guests of the governor, they (the pretentious buildings) should constitute an education in what even "Unto This Last" —equality of all—should mean in terms. For him (the Indian governor), no expensive furniture, foreign or indigenous. Plain living and high thinking must be his motto, not to adorn his entrance but to be exemplified in daily life."

—MAHATMA GANDHI

For a Way of Life of Higher Services

A complete revolution is the greatest need of the time. The word 'revolution' displeases you. What I plead for, however, is not a bloody revolution, but a revolution of the standard of life in the higher services of the country You now belong to the governing class Let it not be said that your heels are no softer than your predecessors' or your associates' A new spirit has been born in the country. The fear of the judge within is more terrible than that of the one without.

—MAHATMA GANDHI

"PRISONER, tell me, who was it that bound you ?"

"It was my master", said the prisoner. "I thought I could outdo everybody in the world in wealth and power, and I amassed in my own treasure-house the money due to my king When sleep overcame me, I lay upon the bed that was for my Lord, and on waking up I found I was a prisoner in my own treasure-house "

"Prisoner, tell me, who was it that wrought this unbreakable chain?"

"It was I," said the prisoner, "who forged this chain very carefully I thought my invincible power would hold the world captive leaving me in a freedom undisturbed Thus night and day I worked at the chain with huge fires and cruel hard strokes. When at last the work was done and the links were complete and unbreakable, I found that it held me in its grip."

YOJANA

Volume XXI Number 16
New Delhi
15 September 1977
24 Bhadra, 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Y o j a n a seeks to carry the message of the Plan, but is not restricted to expressing the official point of view.

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Cover design : Jivan Adalja

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Editorial Office : Yojana Bhavan, Parliament Street, New Delhi-110001. Telegraphic Address : Yojana, New Delhi, Telephones : 383655, 387910, 385481, extensions 402 and 420. Circulation : Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription : Annual—Rs. 18, Two years—Rs. 30. Three years—Rs. 42, Foreign Subscriptions : One year—£2.70 or $ 5.50. Two Years—£4.50 or $ 9.00. Three Years—£6.30 or $12.50 Single copy—twelve pennies or $ 0.25.

"OBSTINATE are the trammels, but my heart aches when I try to break them.

"Freedom is all I want, but to hope for it I feel ashamed.

"I am certain that priceless wealth is in Thee, and that Thou art my best friend, but I have not the heart to sweep away the tinsel that fills my room."

Austerity : Let Not The Lesser Reason Prevail

THE IRONY of the Indian situation is that even Gandhi is remembered in the vast ceremony to which the Constitution and its practice has reduced Indian democracy. And so, it seems, the President cannot escape either Rashtrapati Bhawan or the ceremonial drive

The agony of enforced pomp was reflected in Shri Sanjiva Reddy's Independence Day eve broadcast. It was remarkable for the absence of form. He spoke truly and so without seeking to impress. If he has to go through the routine of nominal power, he would rather do so with an indifference to the attendant ceremony. He wished to break out of the liveried environment in which a cruel convention has sought to confine him; but he was reckoning without the inanities of Delhi's intelligentsia.

A president without power cannot but soon become a symbol of republican ritual, unless he brings to his tasks a graciousness that is not imparted by outward forms but springs from a natural indifference to ritual, symbol and authority. Humility's virtue is in its approximation to self-effacement.

The President of India is not the court of last resort. The institution can be redeemed from irrelevance if it represents the stirrings of emerging India with an attunement to the elemental struggles of the Indian people. The sham of outraged dignity should be beyond the President's make-up and his counsel should have the authentic stamp of a man who lives nobly and in utter simplicity.

It was only natural that the President's announcement of a simple act of renunciation of a palace built as the symbol of imperial power should have brought forth that kind of response which a degenerate political, administrative and middle class milieu of metropolitan India is capable of. There was the knowledgeable outpouring of the press about the illusion of economy in a shift to a humbler residence. There was the agonised concern for some 3,000 men and women who may suddenly find themselves robbed of their unique mission of upholding presidential dignity. There was the lament about the possible decay of a noble pile with its pleasances and messuages. A thought was spared for the honoured guests used to a splendoured reception. And finally, the administration thought up a characteristically splendid new habitation for the President, which would have turned respect to ridicule.

Delhi's middle-class, used to an existence of increasing consumerism, could not have been expected to recognise how much the poverty-stricken masses sorely needed a gesture, different from gimmicks. Rashtrapati Bhavan did not merely imply pomp, ostentation and extravagant expenditure unsuited to a country of poor people; it was not mere economy of spending that has impelled the movement of austerity. It was much more. There was something strangely incongruous between the palaces of Delhi's rulers and the drudgery of life in the countryside. And Rashtrapati Bhavan together with ministerial luxury provided the rationale for a general culture of cynical ostentation that has

rked the styles of administration which have now ended to a whole gamut of public life in the pital and the country.

Nearly sixty years ago, in the month of April, 1919, s land, bounded by the Himalayas and the seas, ioed to a resounding cry of protest. What was it that red the people to that unique demonstration of olve and moved thousands of them to defy the bullets a senseless general in that garden of sacrifice in glorious iritsar? Was it the vision of palaces where there were s? Or was it the dauntless human spirit which ight to tear asunder the shackles wrought by other n?

Three decades later, freedom, a dream and vision a noble people, came in the shadow of tragedy. But, that hour of freedom was struck a deeper wound m which recovery seems as yet uncertain. A tryst h destiny? Was it? India was bidding farewell to era. A strange mercenary world was upon us. Free-n was to be encompassed in form

Members of Parliament, the Cabinet, the bureaucrats , technocrats, the businessmen and the industrialists, professors, the lawyers and the journalists—who ong them rule India? Or is there a social club that s reign in our land? Where do the people fit in this eme of things?

Buildings have come up all around us. Are not the ple desolate and forlorn?

How are our rulers going to tell the worker that must tighten his belt because there are vast masses are destitute still? The only way to stop the mad e of urban demand is for the rulers themselves to set example of austere living and bring about a radical nge in the styles of government which will convulse nation in a paroxysm of elemental purpose.

This was the meaning of austerity. It was not that exchequer might or might not have gained a few usands or lakhs of rupees in the President moving to umbler house. But the gesture could have started a cess of ending the great *darbar* that is ministerial administrative Delhi It would have brought to the of governance a touch of healing, a spirit of humility a mood of compassion. It would have been an of faith by the dumb millions of India. It would given the organised working class a sense of participation in sacrifice and involved them in a noble enterprise of partisanship with their semi-starved, half-naked brethren

Of course, there was the problem of what was to be done with the presidential, ministerial and administrative palaces. There would, indeed, have arisen the problem of the few hundred people moving about in the high-domed building or in the Mughal gardens in their liveried splendour. Any decision brings in its wake some attendant problem. "Each favourite good begets peculiar pain". But is it suggested that the problems are so overwhelming that a basic policy of great national consequence had to be abandoned?

The visiting dignitaries could continue to stay in the imperial environment, if the government so wished. But it is possible that many of them may themselves opt for a simpler environment. Their respect for this country has little to do with the profligate lavishness of its hospitality.

And whose bright idea was it that the President should move a few furlongs across to an equally ludicrous abode for the representative of republican India? Was it an effort to reduce a noble decision to a farce and a caricature?

There are enough places in Delhi where the President, ministers and administrators can live in reasonable comfort, not in luxury —the line that divides is thin but important—and in functional aloofness. Even a flat is a good enough residence from where to discharge even the most prestigious and onerous functions of the state. And it would do all the good in the world if this practice of converting a home into an office and a *darbar*—which has been the practice of the last three decades—is ended

"The world is full of small men who wish to bring down your soaring spirit". So goes a French saying, Delhi is full of them, who, with Satan, can make "the lesser reason appear the better".

It is to be hoped that the President will brush aside this crowd of urban nobodies, impervious to any sense of ethics or humility and abide by his instinct which will find an echo in the hearts of the millions of his countrymen. He should quietly move into a humble abode of his choosing and dare the world around him to do its worst.

or A New Left Movement

BANDONING the *avant garde* role, he has preferred often to remain a critic, camp follower, commentator or coffee house sage without being prepared ay a pace-setter role in politics. Like the cleric in lida he is bewitched by the sound of this rebellion, uttered, with all attendent gesture, in the sanctuary ivilege-bound rotundas or, for a change, to a captive wd" in Mavlankar Hall. He is often content to move thily about in the secret corridors of power manition, his many wonders to perform in the hackneyed me of finding shades of "progressivism" and etypal "primitivism", fascism and "democracy" ple's brand or the national variety). That he repea- finds the hues not so nat ive and authentic but geling and spurious does not daunt his steps. erday's symbol of villainy, by some wizardry, mes today's rallying point of virtue. "Like minded" forces—whatever they may mean, if they mean anything at all—are to be found here, there and everywhere. This constant "realignment" of forces, the churning of the stagnant pool of New Delhi's politics leaves our roving innocent muddied, but he carries on as though he remains as pure as driven snow.

When will this burlesque end? When will the "leftists" learn? Can they not stop being "hangers-on", bleating their ludicrous jargons? Can they not return to the path of steadfast endeavour and to those pioneering days when the idea did not get lost in the dreary sand of dead habit? Writing of the great Gopalan soon after his passing, an anguished "Kapurusa" said in *Economic and Political Weekly* that it was good that AKG died when he did. "A different code of morality is spreading its roots.... people do not take kindly to one who does not know the current set of rules; such a person jams

the signals. . A.K. Gopalan, the silly old goat, did not learn the artifice of the market place···Morality is in a melting pot. One is not at all sure that, once the churning is over, it is Gopalan, who would be considered by posterity as having been right "

AKG, as this writer said, had already "begun to belong to an irrelevant category", because, like many great and noble men before him, he could not see a contradiction between social and personal morality. He spent his last days in a setting of leftist equivocation, easy acquiescence with a lot of hypocrisy and cant and craven cowardice which passed for socialist realism Establishment paraded as the revolution; and the leftists—the whole spectrum of them—chose to be part of this "pseudo" revolutionary establishment of one kind or the other.

GOPALAN'S RESPONSES as a socialist were inseparable from his responses as a deeply human person, valuing some standards of public and private behaviour. Contrast his instinctive revolt against the incipient fascism of the emergency with the cowardly rationalisation of others who saw in it the flaming banner of anti-fascist crusade And contrast also the simplicity and charm and humility of his personal life with the pomp and arrogance and assertiveness that mark the lives of other socialists of different hues, the Lohia brand not excluded

The tragedy of the last two decades is epitomised by the fact that in a country of appalling poverty and a seething mass of injustice and tyranny, the left has not been able to establish its credibility as the symbol of emancipation of the poor, the downtrodden and the under privileged and of revolt against injustice and tyranny Is it not time that the left did some introspection ?

If the leftists, in all seriousness, went about this process of looking within they would find that, barring exceptions, they had ranged themselves on the side of the ruling elite whenever the masses were struggling to free themselves from the thraldom under which they had continued to be bound, despite all the planning and development and modernisation and industrialisation and distributive gimmicks that have gone on merrily without touching the vast millions who neither have food nor know how to fight for it. Having lost at Amritsar not only the capacity for critical creativity but also the elan of revolutionary politics, the left, already heavily splintered, was content with the debate on who in the ruling party was socialist enough

This buffoonery does not seem to have stopped yet. In the new context, socialists of all hues wish to proclaim their "modernism" and "progressivism" forgetting that beyond all this jargon lies a whole mass of frightened, tyrannised people without a lustre in their eyes or hope of early relief from their oppressive existence.

WHERE DID the left go wrong? Some time after Telengana, and together with the acceptance of the theory of "many roads to socialism" (which, in effect, led to the abandonment of the only road to socialism), the communists" or at least a good section of them, not only accepted Jawaharlal Nehru as the lodestar of socialist reconstruction but regarded as their foremost task the defence of Nehru and some of his colleagues in the Cabinet and the Congress Party. This, in itself, was no great treachery to the socialist cause. With the general weakness of the left movement caused ironically by the postures of the man whom this movement chose to defend, the "left" might plausibly have wished not to be decimated by the ascendancy of an American and business backed caucus within the ruling party. W Nehru at the helm, there was breathing time for "leftists" who could use this respite for building a bro based socialist movement.

Not only was this broadbasing not done but theory itself led to more serious compromises with fundamentals of socialist action. One kind of s deception led to another, and degeneration was b into this self-deception. Nehru was coming to terms w the reality of the internal politics of his party and external aggressiveness of American foreign pol Since the "left" refused to build its independent stren it continued its abject dependence on Nehru and cc not project itself as the champion of the oppre millions whose lot was daily becoming more and m unbearable. When other forces—good, bad or i fferent—appeared on the scene challenging Nehru his policies, it was natural that, in a setting of increa poverty, drudgery and disenchantment, the comr people chose to join in the challenge The commun a good section of them, unable to escape from the rel less logic of parasitic politics, had to deepen their com tment to Nehru and oppose the challenge to his poli In the process, they lost their credibility as the tribune the people and lost ground rapidly

The tragedy did not end here Parliamentary pol brought in further compromises and accelerated the appearance of ethical fervour, which was a redeen feature of the left movement in its early days Soci belief could coexist with individual comfort and e affluence, and defence of this comfort greatly restri the choices of action It is important to remember t this process took place in an environment of moderr tion of urban consumption which was a feature Nehru's economic policy. A whole generation "left" intelligentsia grew under the auspices of eth indifference and modernised consumption Their ssures on the government in general and on the part particular determined the deterioration as much Nehru's policy as of communist politics

THE TRAGEDY was to go deeper. Identi tion with Nehru, to an extent, arose from a class "left" acceptance of industrialisation and the pu sector as the road to emancipation of the "dumb millic of India To begin with, this was pardonable. many in this country were prepared to go with Gan Nehru's differences with the Mahatma were fundame as could be seen in the correspondence between the on the eve of British departure The differences v not only on industrialisation but on "modernis Nehru believed in both. India and her villages v primitive in the economic and technological sens not in cultural terms Her salvation lay as mucl industrialisation as in modernism. The commun like many other well-meaning urban liberals, v along with Nehru. The support to an economic pc of large-scale industrialisation and rapid expansior the public sector was based on an orthodox rationa

There were people, chief among them Gandhi him who differed fundamentally with Nehru. Dr. Lohia Jaya Prakash were leaning more towards Gandh time went by. But the Nehru approach was basec his appreciation—matched by communist appreciatic of how this country could quickly get rid of relianc foreign and indigenous monopoly capital, rapidly impi its defensive strength and produce goods and services such speed that the grinding poverty of the pe could be ended within a set period of time. The

phasis in the second and third plans under Nehru and in the fourth plan after him was on "growth". It was assumed that "growth" would bring about employment and distributive justice. There was no need for a separate orientation to employment except in some marginal terms. What was necessary, however, was to exercise strict control over and regulation of industrial growth, both through licensing policies and through the state capturing the "commanding heights of the economy".

THIS WAS an honest approach, backed by a large section of informed opinion, though there were always some equally sincere voices against. It is idle to pretend that Nehru's policies had not succeeded even as it is idle to pretend that they had not brought in their wake many stupendous problems—political, social, economic and cultural. There is now an infrastructure of industry, transportation, energy for which this country will be grateful to Nehru, when present controversies are forgotten. Our technology is diversified and we have built a body of talented people with research aids in a wide range of scientific and technological study. It would be absurd either to deny Nehru the credit for much of this or to suggest a complete break with this policy or a dismantling of this infrastructure built with painstaking effort and great spending of resources

This is not to suggest that an honest view could not be had of the validity or otherwise of the path chosen by Nehru in contradistinction with the path fervently suggested by Gandhi But in doing so, one has to recognise the positive aspects of Nehru's policies Not only that. An academic controversy over the merits of Nehru's policy hardly helps; this is an exercise which is best left to historians. If it is impossible to reverse history, it is sterile to work oneself into a rage over past mistakes, supposed or real.

Where, however, the communists failed was that, as a party claiming to be revolutionary, they were not prepared to reconsider their basic assumptions when they were leading to disastrous results.

It was not a question of choosing between Gandhi and Nehru It was a question of creative reappraisal of policy in the light of experience Apart from the monopolistic tendencies fostered by the totality of the planning process, the tremendous hold of foreign economic and political interests on our polity arising precisely from the race towards "modernism" should have caused some rethinking. Vast masses of people were left untouched by development. The public sector was fast becoming a bureaucratic paradise and licensing led as much to the fantastic growth of a few industrial houses as to a great involvement of the civil bureaucracy and the political elite in private deals. A new breed of liaison officers with lavish expense accounts exerted a tremendous pressure on policy. The nexus between an aggrandising bureaucracy and a decaying political set-up led to galloping corruption and extravagance, ostentation and to proliferation of administration. The styles of government changed rapidly with the result that New Delhi's pomp bore little relation to the massive poverty and drudgery of the people.

NOR DID the Communists sufficiently realise the significance of industrial expansion in a circumstance of great potential for a whole range of modernisation of consumption. Industrial and capitalist development in the west took place at a time when items of conspicuous consumption were relatively unknown. The capitalists, while extracting the maximum from labour, were forced to "save like bees", as Keynes said. There was wealth creation, with the consequent scope for greater employment, aided, of course, by colonial expansion.

In India, on the other hand, modernisation of consumption kept pace with modernisation of production. The industrial working class and the urban middle class, were caught in this "consumer society" and cornered a larger share of the fruits of production than the generality of the people for whom many of these fruits were irrelevant because they did not have even food or clothing or shelter or employment to begin with.

A look at the national income and consumption statistics is revealing. If one were to settle for averages, one would find that every Indian family of five people today can have, on an equal division of the national product at current prices, some Rs 450 a month, which is not such a bad thing even at the high level of prices. But the truth is that a minority of people are having a disproportionate share of the national product and much of what is produced is of no consequence to the task of ending poverty A good section of the people live much below the minmum consumption standards, which is euphemistically called poverty line—meaning that these people are semi-starved, half-naked and destitute, materially and spiritually.

At this stage, creative socialist reappraisal of the assumptions of policy was sorely needed and was woefully absent The communists asked for nationalisation of banking and foodgrains trade, pleaded for radical land reforms and worked for greater distributive justice—all of which would have been unexceptionable if they were matched by an understanding of the limits of their usefulness in an economy based on exploitation by the few of the vast majority Within the existing system, these steps could have, as they had, only resulted in a sprawling bureaucracy and a further acceleration of administrative and political corruption, without any attendant benefit to the people. Some amount of land reforms has indeed, taken place but the rural economy is not looking up as much as one would have expected

BEING DIALECTICIANS, the communists were expected to analyse the situation but they were afraid of losing their cherished notions Clinging to pet ideas, they found comfort in the "pseudo" revolution of trade union and "intelliegentsia" parasitism. They were not prepared to consider whether the evil was in the "growth" process itself, or in the assumptions behind planning

This was necessary not only from the point of view of a valid economic and social policy for India but from the point of view of democratising Indian politics. The vice grip over the political process of the demand-oriented, grievance ridden, urban class starting with business and industry, running through the consumption bound intelligentsia and ending with a working class having no partisanship with the starving millions made the generality of the people incidental, irrelevant and irksome to governance, statecraft and democracy. Not having a voice in the affairs of the country, they were content to be sullen and resentful without knowing how to act. The vote did not bring them any relief because after they had voted, the operators took over every time. Since 'efficiency" and "expertise" were sufficient ground for the denial of democracy, the client people were always outsmarted by the city stick.

The greatest indictment of the economic policy, hitherto pursued, is that it robbed the people of their sovereignty and made them vassals in a bloodsucking

process as cruel as colonial rule. It is this that troubled Gandhi greatly. His attitude to political and economic policy was determined by his dynamic, passionate and single-minded commitment to and concern for the sovereignty of the "dumb millions". For him, "the supreme consideration was man" Though he rejected organisation and, therefore, the methodological language of western political philosophy, and though he stated his conclusions in terse, aphoristic terms, he had thought and written so continuously and profusely that a clear, coherent philosophy emerges, which is neither atavistic nor simplistic. The communists have a duty to understand his compelling logic. Recognising the need and circumstance, Gandhi did not reject industry altogether. Recognising its potential for exploitation and oligarchy, he argued for its limitation. While he did not set the limits, he stated his conclusions admirably thus : "I am not against capital but against capitalism; I am not against industry but against industrialism". Simplified industry, for him, was not a mere ethical principle. It was an essential ingredient of the primacy of the people's idea. "The city people", he said, "are brokers and commission agents for the big houses of Europe, America and Japan. The cities have cooperated with the latter in the bleeding process which has gone on for the past two hundred years. We in the cities become partners in the bloodsucking process."

GANDHI'S ECONOMIC policy is only an extension of the left opposition to foreign collaboration in fields where we can go without it. The moment we go in for sophisticated technology where indigenous technology can and does deliver the goods as, for instance, in fertilisers, we throw open our policy to foreign manipulation. Thus, the limits are important Similarly when we go in for large scale industry, where small scale and cottage industries can do the job, we throw the people to the wolf. It is not merely employment and ending poverty. These goals are important and there are many who think that they are achievable at a faster rate through decentralisation of the economic process. But, more basically, if the people are to be brought into the scope of things and are to be masters of their destiny without being clients of an urban class, (benevolent. if possible, or greedy, if inevitable) one has to find objective solutions to the basic problem of people's democracy. It is here that Gandhi compels attention and the communists just cannot brush him aside as impractical, romantic, revivalist or primitive.

Industry may or may not be important; but it is a new form of idolatry to worship it as a kind of god without reference to the fact that, (to use Gandhi's words), the only god which the vast masses of this country have known is a "god of terror, vengeance, a pitiless tyrant". Partisanship with the people would require a creative socialist to break out of the comfortable prison house of jargonised concepts and seek solutions that would work in the short run as well as the long run. To think that the short term can be sacrificed for the long term is as deceptive as to think that perspectives are expendable.

It is not an accident that a whole lot of vocal people, the leftists not excluded, are up in arms against even the half-hearted attempt to reverse the priorities of planning from the urban to the rural areas. People wish to testify to their progressivism by affirming that the 1956 resolution is valid today as it was when it was adopted and by lamenting, as the Congress has done, that any slowing of the tempo of industrialisation is a throw-back to atavism.

WHEN THERE is such a ferment of ideas abroad about the validity and scope of industry as an instrument of emancipation, the Indian left continues to cling to its pet ideas. There is a safe feeling in this hugging to established concepts. Anything new makes the left feel nervous. The total atrophy of the thinking process is an outstanding feature of left behaviour in India.

Thus, in the ruling party of the time, those who stand for industrialism, growth, public sector, gigantism and monoliths are "progressive" and "modern"; those who raise their feeble voice in favour of decentralised economy, employment and people's sector are "primitive" and "atavistic". Not that a useful discussion is not possible on the limits of one or the other—big industry or decentralised economy. But to start with a premise that industrialisation is synonymous with people's interest is to foreclose the debate. And the left in this country has seldom shown any ability for creative discussion.

The reason is not far to seek. Even before the Industrial Disputes Act, the left decided that its area of operation would be predominantly urban. Its clientele was the industrial working class and its partner was the professional intelligentsia. And after the Industrial Disputes Act, which, in its many manifestations, now embraces the "interests" of the intelligentsia, the transformation of the left as the tribune of the economism of the industrial working class and organised middle class was further accelerated. Its agitations were over dearness allowance, bonus and ever-increasing emoluments. There was a vested interest in these struggles, a vested interest in urban consumerism, unmindful of the fact that every increase in the emoluments of this class further depressed the quality of life of the millions outside the organised sector. Who cared if the burdens of a price increase fell as heavily upon the unorganised poor as they fell upon the relatively better-off organised classes.

Here was a congruence of interests of big business, industry, the professional classes and the trade unions. They formed a single exploiting group against the rural poor and the urban unemployed. And if anyone had an illusion that the working and middle classes would act as the vanguard of the broad mass of people. the history of the last two decades should have dispelled it.

INDIA DOES not appear to be on the brink of a proletarian revolution leading to a working class state which will, in the interregnum, be the trustee of the generality of the people. What appears more likely is the consolidation of the unity of the bloodsuckers —the aggrandising bureaucracy having an interest in the bureaucratic sector passing for the socialist sector, the professional intelligentsia steeped in its narrow self-interest, the working class wanting its pound of flesh and businessmen and industrialists who are ready to come to terms with this ever growing economism and consumerism.

This need not have been, if only the left had given an ideological basis for the trade union and middle class movements, a basis away from sheer economism. Socialism as an economic process ignored the human process of creating a socialist man. The Indian worker today can hardly be called "socialist" in any sense of the term.

Dr. Lohia's disestablishmentarianism, arising largely from Gandhi's "anti-state," led him to launch a sustained attack on all aspects of the violence from which any state and more so Nehru's state would never be weaned away. This violence manifested itself in the cost of

Nehru's economics, the pomp and hypocrisy of the party which he headed, the corruption and insensitivity of the bureaucracy, the consumption-based upper class socialism and the ceremony of the parliamentary process. Starting from this premise, Dr. Lohia thought that Nehru and the Congress were the symbols of this high cost establishment. Just as Gandhi wanted to "destroy industrialism at all costs", Dr. Lohia wanted to remove the incubus of the Congress". While Dr. Lohia has left a whole lot of writing on his basic social, economic, political and cultural philosophy, his time was spent in attacking the basis of Congress power even as the Communists spent their time in buttressing that power. This necessarily led Dr. Lohia to alignments and compromises which have continued since and which have diverted attention from Dr. Lohia's more fundamental concerns. It was as unfortunate that the Lohia socialists could not build a strong national base of movement of the down-trodden as it was that the communists did not develop their inherent strength through mass politics as different from "class politics".

The Gandhian socialists, barring the sarvodaya workers, were always a highly glutinous lot. Even the sarvodaya workers did not attempt a coherent presentation of Gandhian economic and political philosophy.

THE BROAD spectrum of the Indian left has to move out of its narrow grooves if it wishes to play its role in this country which is crying for a left movement attuned to its ethos and needs. Apotheosis of Gandhi, Nehru, Lohia or Jaya Prakash is not the same thing as understanding the relative appositeness of their ideas. The left has to broadbase its concerns, break out of the narrow urban confines, liberate itself from the prison of established concepts, identify with the "dumb" millions without being preoccupied with the "vocal" urban pressure groups and match their actions with the unleashing of a new tidal wave of an idea movement.

—R.K.

Not Enough, Shri Advani

—Kaushik

SHRI Jagjivan Ram is reported to have said at Jodhpur that the change of government in New Delhi has not brought about any change in the styles of government and without this, we had no business to talk of a revolution, silent or raucous.

Others have felt as much. The people of this country again seem to have been cheated. On the first occasion, India's political development was reduced by Jawaharlal Nehru to a mere administrative exercise. With the passing of time, democracy became a vast ceremony. The administrative system was sanctified by authority, status symbols, ostentation, non-accountability and extra-functional hierarchies. Administration, in our times, is a pivotal factor of society and a change in the system will have a profound social consequence.

The new government does not seem to believe in this. It has maintained intact the oppressive, time-consuming, condescending, cynical, aggrandising bureaucracy even in areas where creativity should have informed the structure of administration.

Shri L.K. Advani has been very much in the news since the new government took over. He earned kudos—and legitimately, too—for quickly dismantling the apparatus of cultural tyranny sedulously built by his not too illustrious predecessor. He has been as good as his word in setting up a group to recommend the conversion of AIR and TV into autonomous bodies.

So far, so good. He has also suggested that the states should have some voice in the planning of broadcasting programmes. The maladroit handling by the Ministry of Information and Broadcasting of a projected May Day broadcast from Calcutta by a West Bengal Minister some years ago brought into sharp focus the basic issue of AIR being the instrument only of Central Government policy. More recently, during the Emergency in particular, the misuse of broadcasting extended to denigration, sometimes bordering on malice and vulgarity, of leaders of the constituent states of the Union. Autonomous or otherwise, broadcasting and television cannot have a highly centralised policy structure, if it were to reflect the differing cultural, political and social movements in the country. Competitiveness can be built into these media, without any addition to expenditure, if some of the regional stations, to begin with at least, are liberated from the centralised bureaucracy of the new set up.

Shedding control should be not only in form but in substance. Fear of a frankenstein emerging from handing over these powerful media to regional boards will be ludicrous. The Indian Constitution has not been afraid of handing over the administration of a state, including law and order, to the governments of these states; and no greater harm is likely to arise from the handing over of these media to autonomous boards responsible to state legislatures. A unitary broadcasting system is no more valid than a unitary government. If the affairs of this great nation cannot be run from New Delhi alone, the media need even less be.

To assume that a central leadership will be more responsible than the state bosses is not only to fly in the face of recent history but to adopt a posture of superior virtue, which will soon degenerate into arrogance and paternalism.

Judging from Shri Advani's utterances, one feels that he himself may not be averse to a great devolution of policy and programming responsibilities, together with matching powers, to duly constituted state autonomous boards. But he will have to overcome the vested interests of the broadcasting administration. For long, worthwhile policy has been made difficult by the career interests of the functionaries, as though administration exists for them and not for a public purpose.

Shri Advani's success will depend on his ability to overcome this resistance. He gave everyone hope of a new dimension to communication policy when he mused over the possible irrelevance of a Ministry of Information and Broadcasting. Communication is a grossly exaggerated subject and there is scope not only for dismantling the Ministry but for doing away with much of the communication infrastructure which is totally irrelevant to the needs of democracy or development. Much fat can be shed without any harm to public good and with great benefit to the health of this country, its people and its democracy.

The service-bound general and specialised bureaucracies are bound to come up with all manner of arguments against a new and radical approach. That they seem to be succeeding is evident from the continuance of the bureaucracy, in structure and in personnel, which is making the Ministry less of an idea spring-board than it ought to be.

New Priorities in Agriculture

Surjit Singh Barnala

DEVELOPMENT of agriculture has to be viewed in the wider context of a fuller and richer rural life. The fruits of development do not automatically percolate down the rural masses. A conscious and deliberate attempt will have to be made to give the rural folk a place under the sun. It has to be a nation-wide effort. Besides, employment for all who can work is one of the national time-bound aims. The quality of employment is as important if not more important than, the mere fact of employment.

The key to the attainment of these objectives is increased productivity by the cultivators who have to produce more than their own needs To induce them to produce more, conditions should be created to make them feel that they are adequately rewarded for their extra efforts. They need to be provided the necessary extra resources and a change in their outlook has to be brought about so that they can invest in land reclamation, fertilizers, good-quality seeds, pesticides and other recommended farm practices

This becomes the starting point for an ever-widening circle of all-round development covering ancillary and agro- industries; service industries: small-scale industries, handloom and handicrafts. These, in turn, would lead to stopping the exodus of unemployed or under-employed to urban centres which otherwise adds to growth of slums and focii of socio-political turmoil

The total foodgrains production in 1975-76 was 120.83 million tonnes, as against 99.83 million tonnes in 1974-75. The production this year is estimated to be around 111 million tonnes. The target at the end of the fifth plan is 125 million tonnes. The progress in this field has been satisfactory and we have a comfortable buffer of foodgrains which can ensure easy availability thereof in the foreseeable future. However, we must not be complacent nor slacken our efforts towards raising productivity.

Our experience during the last 30 years of agricultural growth has shown :—

(a) Indian farmers are ever willing to adopt economically viable new technology provided the technological package is supported by appropriate packages of services and public policies.

(b) there has been differential rates of progress between regions, between crops and between different farming systems; also, there has not been the desired degree of integration in crop-livestock-fish production systems.

(c) unirrigated areas have, by and large, been neglected since the earlier strategies relied heavily on producing the food we need in irrigated areas.

(d) rural women as a class have generally been bypassed by most extension programmes though they play a key role both in the production and post-harvest phases of agriculture.

(e) though we have developed some capacity to grow more food, we are yet to develop for the entire population the capacity to purchase and eat food; even a five per cent increase or drop in production tends to create all the difference between an uncomfortable glut and acute scarcity.

As agricultural production hinges mainly on the availability of water and timely and adequate supply of other essential inputs like improved seeds and organic and inorganic fertilisers, steps have been taken with vigour in that direction. As regards water for irrigation, experience has shown, as in Punjab, that apart from major and medium irrigation, minor irrigation is an important source of water supply. India has vast underground water resources particularly in the eastern states and parts of Rajasthan. A massive programme of ground water development has to be undertaken. In view of the constraints of water supply in some areas, emphasis is being laid on scientific water management practices. Efforts are being made to ensure that irrigation programmes facilitate multiple cropping and adoption of high-yielding varieties over larger areas.

To stabilise production of agriculture in rain-fed areas or those areas having inedquate or erratic rains, research into improved dry farming technology is being intensified. Extension machinery is being energised and made more effective to ensure that the new technology reaches the farmers. Subject matter specialists are being associated with the extension machinery for proper propagation and adoption of this technology.

Dry Farming

For augmenting production of coarse grains like jowar, bajra and maize which are, by and large, grown under rainfed conditions and partly under semi-arid conditions, the main strategy is to increase the coverage of high-yielding varieties. It is proposed to cover an area of seven million hectares under high yielding varieties of jowar, bajra and maize during 1977-78 as compared to the likely coverage of 5.50 million hectares in 1976-77. As inadequacy and variation of rainfall often leads to failure of coarse grain crops, priority is being given to evolve suitable varieties and improved farm practices including soil and crop management under rainfed conditions through the implementation of centrally sponsored scheme of pilot projects on dry farming. These projects are established in close proximity of the research centres for dry farming.

Agricultural programmes have to be attuned to current needs. In particular, we have to step up the production of pulses, oilseeds and cotton as speedily as possible. Pulses have been neglected in the past and today we find that the per capita availability of pulses has been steadily going down. They are still regarded as crops for marginal lands with sub-marginal management. This outlook has to be changed. The ICAR and the Department of Agriculture are currently developing a strategy for improved pulse production in rainfed areas, inadequately irrigated areas and irrigated areas. We would strive to increase the production of gram, lentil and peas during the coming rabi season. The measures being taken include plant protection on a massive scale, application of phosphatic fertilisers, bringing additional areas under other crops by taking up the cultivation of moong and urad

as catch crops and summer crop between rice and wheat and in the rice fallows. In addition, the centrally-sponsored scheme for the intensive cultivation of pulses has also been taken up in 46 important pulses growing districts.

Oilseeds and Cotton

The demand for vegetable oils and oilseeds has been rising faster than their production. Certain measures which can yield quick results in augmenting the production of oilseeds have been taken. These include (i) large-scale plant protection operations for the control of pests and diseases of groundnut and rapeseed and mustard, including a special and subsidised scheme for aerial spraying; (ii) launching a special campaign to encourage the use of phosphatic fertilisers on groundnut; (iii) covering large areas under irrigated summer crops in the states of Andhra Pradesh, Karnataka, Tamil Nadu and Orissa; and (iv) strengthening the seed production programme. In addition, the package programme approach under the centrally sponsored intensive oilseeds development programme is being continued for intensive production of groundnut and mustard and popularisation of improved varieties of castor seed. Cultivation of non-traditional oilseeds like sunflower and soyabeen on a large-scale is being encouraged under the centrally-sponsored scheme for the development of non-traditional oilseeds. The implementation of these and other programmes in the States is expected to stablise and increase the production of oilseeds in the country.

Considering the urgent need for stepping up cotton production, we have initiated a number of new programmes. These include : (i) aerial spraying, substantially subsidised, over larger areas for the control of insects/pests of cotton; (ii) extending the existing intensive cotton development programme to cover an additional area of 1.4 lakh hectares in seven important cotton-growing districts; (iii) providing properly fumigated quality seeds to the farmers to ensure optimum plant population for higher productivity; and (iv) strengthening certified seed production, particularly in the States of Punjab, Haryana, Rajasthan, Madhya Pradesh and Andhra Pradesh. Steps have also been taken to extend the cultivation of cotton under the command areas of major irrigation projects

For increasing sugarcane production a centrally sponsored scheme for sugarcane development is being implemented from 1975-76. The scheme envisages intensive cane development programme in compact blocks of 2,000 hectares each around the selected sugar factories. The main items of work under this scheme include healthy seed production and distribution, demonstration of improved practices, adoption of timely plant protection measures, training of cane development workers and construction of link roads around sugar factories. Apart from the developmental efforts, remunerative prices are being given to farmers, through the implementation of the scheme of dual pricing of sugar.

For increasing the production of jute and mesta in the selected districts, an intensive jute mesta district programme has been taken up in important jute and mesta growing districts in the States of West Bengal, Bihar, Assam, Orissa, Uttar Pradesh and Andhra Pradesh. Further a scheme to increase productivity has been sanctioned for foliar application and top dressing of urea.

In regard to the important plantation crop of coconut, which is a source of edible oil supply, development efforts are mainly in the direction of promoting the package programme approach, including the supply of hybrid planting material and control of pests and diseases For increasing, the production and productivity of coconuts in Kerala which accounts for about 60 per cent of the total coconut production in the country, a centrally sponsored scheme has been taken up for rejuvenation of the disease affected plantations. In addition, a World Bank project for rehabilitation and expansion of coconut plantations has also been sanctioned for Kerala during 1977. The project, *inter alia,* provides for systematic inter-cropping of coconut with high value crops.

Pesticides

The government has adopted an integrated approach towards pest management through which all the methods of control like manual, mechanical, biological and chemical methods would be used. The most important aspect in pest control is the timely detection of pest build up For this purpose, besides the establishment of about 12 pest surveillance and forecasting stations, seven more are being established and the state governments have also set up a number of pest surveillance units. Five biological control stations have been established by the central government for breeding of parasites and predators for inundative release for tackling certain pests.

The demand for pesticides is met predominantly through indigenous production. A strong foundation for the manufacture of pesticides has been laid in the country and currently the production is of the order of 47,000 tonnes. In terms of quantity, this accounts for more than 90 per cent of our annual consumption.

Prices and Production

Apart from organising efforts to supply inputs and assist the farmers in achieving higher crop production, the government attaches great importance to ensuring a fair and remunerative price to them for their produce. With this end in view, prices of agricultural produce are reviewed every year and suitable adjustments made, keeping in view the cost of production and the need to give incentive for increased production. The government also organises procurement operations for important foodgrains crop to ensure that prices do not fall below the guranteed level. Government's decision to allow some relaxations in the specification of the procurement of rain-affected wheat came as a great relief to the farmers, who would have otherwise suffered heavily on that account.

While the benefits of development are meant for all sections of the people, it has been the experience in the past that most of these benefits are appropriated by the richer sections or bigger landholders. To ensure that these benefits in agricultural sector flow substantially to the small and marginal farmers, special steps have now been taken.

Our strategy for assisting marginal farmers and landless labour relies heavily on the promotion of subsidiary activities like animal husbandry and dairying as an integral part of a mixed farming system. Obviously, landless labourer or a marginal farmer, who has practically no risk-taking capacity has to be insulated against losses due to epidemics and other calamities.

Our government is committed to eradication of unemployment within a decade. To accomplish this big task, we must develop labour intensive and appropriate technologies for each area. Science and technology must find an answer to such problems. Efforts in this direction are being intensified. □

Our ultimate aim is the deployment of a cluster of educated youth consisting of agricultural, veterinary, engineering and home science graduates for a group of 25-30 villages. It is important to adopt the cluster approach since this will also help to create a community of technical men and women who will be able to reinforce each other's knowledge.

The country cannot continue to have the old agricultural practices hereafter, as doing so would keep it where our agriculture is today and we will find it very difficult to push up production except by a few million tonnes in good seasons. What India needs today is a re-orientation with a view to using the infrastructure for growth already created for the following purposes :—

(a) improved production through increased productivity of both terrestrial and aquatic farming systems and the development of crop-livestock-fish integrated production systems;
(b) making agricultural growth an important instrument of generating more income and employment by linking production and post-harvest technologies in the form of an integrated chain;
(c) organisation of agro-industrial complexes in every district for the purpose of linking agriculture and rural industries; in such agro-industrial complexes, the landless labourer should get the highest priority to become agents of production since it has been estimated that a majority of over 100 million severely malnourished people in our country belong to the households of landless labourers; it is essential that some of the landless labourers are withdrawn from the routine operations of farmings and
(d) introducing a farmer-cum-area centered planning and intensification of location-specific research and extension.

We are now on the threshold of a new era. We are reorienting our agricultural programmes in these directions. New and newer varieties of seeds for various foodgrains and commercial crops are being developed. Credit institutions are being strengthened. Fertiliser production is being diversified and further stepped up. Government policies and programmes are being oriented to serve the major purposes of increased production and productivity; and individual and collective consumption capacity. ☐

PEOPLES PLAN II

Need to Locate Area Resources and Needs

—Dr. Radha Raman Singh

EMPHASIS on national priorities often ignores local needs. Centralised investments keep public consumption needs outside the scope of the plan, urbanisation isolated the bulk of population from the national economy. There is no functional integration. This is the cause of existence of backward regions, weaker sections, unemployment and poverty.

The people's plan II prepared by the Indian Renaissance Institute aims at fulfilling minimum primary consumption requirements of the growing population, generating employment in villages, ensuring productive participation of the masses in the development process and providing social and economic justice through proper distribution of growth throughout the economy—all of which would ultimately result in ending poverty.

While the fifth plan allocated 11.82 per cent of the total investment for agriculture and 8.76 per cent for irrigation and flood control, the people's plan allocation is of 15.28 per cent and 13.26 per cent respectively. Similarly, in the people's plan, allocation for education is 7.44 per cent and for social and community development services 23 08 per cent as against 3.27 and 12.13 per cent respectively in the fifth plan. In the industrial sector also, the people's plan puts greater emphasis on small industries especially agro-based cottage and household industries, without ignoring the significance of large industries at the national level as against priority emphasis of the fifth plan on the large industries. If the identified task in the people's plan II are really performed, it would bring about a correlation of growth and poverty elimination.

Useful Approach

The Renaissance Institute plan adopts a useful approach by estimating the perspectives of growth and employment for a 20 year long term, planning for people's prosperity with different dimensions for 10 years medium term, and a traditional plan for a three year short term.

The need in India is to start the planning process from the villages assuming the district as the basic planning unit and the entire plan projection of the country should be based on assessed needs and available domestic resources in different areas. Action programmes should adopt rural growth centre concept as a focal point for spreading plan activities over a cluster of villages in the area. Within the ambit of district plan, these rural growth centres should be properly placed in the area plan based on scientific methods of identification. Accurate assessment of needs and resource availability should be the basic tool of action programmes.

An Important Omission

While the strategy inherent in people's plan II is ideal and rural growth-oriented, the objective of rural re-orientation must be followed by a clear cut approach to planning from below the village and district levels. An action programme based on domestic resource potentialities and needs is missing in the people's plan II. A mere financial allocation with profound objective may not pave the way of development in the absence of concrete micro level plan approach and action programmes. It is here that the ideas of people's plan II should be linked with proper plan mechanism, people's co-operation, technological innovation and domestic resource mobilisation. ☐

Only Through Cooperatives Please

V.K. Balakrishnan

SOUND DEMOCRACY cannot be built around "bureaucratic nationals" such as food corporation or state trading corporation. The giants must be split into smaller units. In a country like India with mass unemployment viability cannot imply big units at the cost of small units, which provide greater employment in scattered far flung areas and help in better distribution of economic wealth. Big units, which may be economically viable, may be unmanageable in terms of better human management The Planning Commission should keep this in mind while dealing on public sector units in the next plan.

In the cooperative sector, there are now 1.4 lakh primary agricultural credit (service) societies with a membership of 40 million They cover 95 per cent of the villages and 45 per cent of the rural population. Efforts are being made in all states to improve this membership and to strengthen the primary level societies which form the base of the cooperative movement. There is also a vast network of about 20,000 distribution outlets operated and run by the cooperative consumer stores in urban and semi-urban areas and even in rural areas. The primary societies have been federated into functional federations at the district, state and national levels. There is thus an adequate broadbased institutional framework for various economic activities, including agricultural production and rural industries.

Range of operations

There has been considerable expansion in the work of cooperatives. The aggregate short and medium term loans advanced by primary agricultural credit societies increased from Rs. 578 crore in 1970-71 to around Rs. 1000 crore in 1975-76. The total long term loans disbursed by cooperatives during the fourth plan period was over Rs. 850 crore and the target for the fifth plan is Rs. 1500 crore. In marketing, the value of agricultural produce handled by cooperatives during 1975-76 is estimated at Rs. 1559 crore. Cooperatives now account for the distribution of nearly 62 per cent of the total value of fertiliser used in the country. During the 1975-76 sugar season, 103 cooperative sugar factories were in production; they produced, up to 30 June, 1976 over 2 million tonnes of sugar, accounting for nearly 48 per cent of the total production. For reaching the essential consumer goods to the urban population, there are nearly, 19,000 cooperative retail distribution points. Practically, all urban areas in the country with a population of 50,000 and above are covered by consumer cooperatives. The value of consumer goods distributed by these cooperatives annually is of the order of Rs 550 crore. In the rural areas, marketing and service cooperatives have nearly 50,000 retail points for distribution of consumer goods and the total value of consumer goods distributed by them annually is now of the order of Rs 400 crore

The cooperative sector, which reaches to remote areas, and where government machinery and democratic management are interlinked, can serve the nation in agriculutre, consumer distribution, rural industry and transport, among other fields.

Resource Raising

In the case of raising resources for the plan, much can be done by cooperatives In Kerala, for example, a drive for collection of resources through cooperatives, yielded Rs 26 crore in two weeks or so last year, as against a target of Rs 20 crore and it was meant specifically for providing loans to weaker sections. In most states very little effort is now being made to use this sector to mobilise resources for the plan. Instead this sector is being used in many states to pump in more funds in the shape of loans to rural areas. The outstandings of such loans in many states are increasing to staggering levels These outstandings were very much on the increase during the election year.

A writer said recently, "Resources need to be mobilised from the affluent farm sector to finance developmental projects, intended to provide better inputs to the middle, small and marginal farmers and to provide the necessary funds for a massive rural works programme to generate employment in the villages. The sixth plan will not be able to fulfil the national objectives of accelerating growth with social justice, unless this decision is taken in time". The article went on to suggest that the recommendations of the Raj committee should be implemented quickly. I would add that along with the efforts to implement the recommendations, a conscious decision has to be taken that for mobilising rural resources, the cooperative sector should be used in an effective way. This is all the more so, as commercial banks cannot reach the rural areas to any appreciable extent, even during the sixth plan.

The best institutional agency to finance agriculture is the cooperatives. The multi-agency approach needs review. Instead of encouraging commercial banks to finance agriculture, it would be better to induce them to help agricultural cooperatives set up processing units and storage space.

Banks Won't Do

For financing weaker sections, the government should offer guarantees for the risks involved. Commercial banks do not have the wherewithal to finance weaker sections. This is a rehabilitation and not a business proposition. The rural banks will whither away soon. These novel ideas have been forced down the throats of many who dared not raise a voice against these policies when they were decided.

Procurement and Distribution

In the twin areas of distribution of farm supplies and procurement of surpluses from farmers, there is a network of over 4,000 marketing societies at important market centres with storage space and even processing units. Considerable public resources have gone into these societies in the shape of share capital, investment for godowns and subsidies for managerial staff. As in Japan, these societies should be used as the sole agency of the food corporation of state governments for procurement of surpluses from the farmers. The farmers are members of these societies. The middlemen can be eliminated in the process. These middlemen and the bureaucracy including the bureaucracy of the food corporation are bound to resist this but their vested interests and pressures should be ignored. Otherwise the

money sunk in marketing cooperatives since the second plan will go down the drain and the middlemen will further hoard and push up prices all along the line.

RURAL INDUSTRY

Development of village, small scale and medium industries is possible only through a cooperative approach. The large number of rural weavers and artisans have no salvation except through united efforts. But in the Ministry of Industry, the post of Commissioner for Industrial Cooperatives is vacant for the last one or two years. There is, therefore, no leadership drive in that Ministry to develop industrial cooperatives. If industrial cooperatives are to be improved there is need for a definite policy decision and support from government.

In distribution of consumer items, the 1.4 lakh primary agricultural credit (service) societies, and the outlets directly run under the consumer stores should be utilised. This move by some state governments to set up civil supplies corporatives with their own outlets or private parties will distort government policies. Consumer cooperatives should be strengthened

If the government decides that the cooperative sector can be on par with the private sector, there is no need to put in valuable resources of the government in the cooperative sector and put in government nominees on the board much against the wishes of the democratic management of the cooperative institutions The Planning Commission should spell out its policy.

Prof. Wolf Ladejinsky, in his note dated 13-2-1969 submitted to government said :

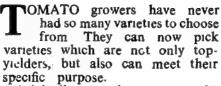
> "If the new strategy continues to lay stress on the relatively few, the inevitable social and economic tensions could at some point, overtake the process of peaceful change in the countryside, and weaken the effort to augment agricultural production The idea that under-privileged farmers "can take it" while waiting for the millennium is not as solid as the "Rock of Gibraltor

FOR A NEW SOCIETY

The Planning Commission should take a hard look at the cooperative sector in all its aspects, and use it as an instrument for social and economic change for the betterment of millions of the down-trodden in this country. Jawaharlal said in the Lok Sabha on April 12, 1959 :

(*Contd. on page* 26)

KNOW YOUR TOMATO

TOMATO growers have never had so many varieties to choose from They can now pick varieties which are not only top-yielders, but also can meet their specific purpose.

Originally, growing as a wild species in the South America, tomato has undergone spectacular development during the last 30 years.

Tomato, now tops the list of vegetables for processing Its unique quality of lending itself to various products have led scientists to develop improved varieties having different characteristics to suit different purposes—for eating fresh, making curry, processed food and canned whole tomatoes, juices, purees, soup, chutney, souces and so on. The grower has to make the right choice to suit his purpose and the particular region. It is easy to get heavy yields from them, provided a scientific method is fcllowed.

Tomato can be grown almost round the year, but the time of planting varies from region to region, because it cannot stand frost. It requires a warm weather to grow and give fruit.

In the plains of the North India, it can be sown in June-July in the nursery and transplanted during July-August. The second crop can be sown around November-December. In the hills, the crops sown in March-April can be transplanted in May-June. In the South, tomato can be sown any time during the year, but the best time is September. For the western region July and October are the ideal months for sowing.

Tomato can be grown on a variety of soils, but it does better on rich loan, sandy loam and sandy soils

The field must first be brought to the fine tilth. For heavy yields, 25-30 tonnes of well rotten from yard manure and 400 kg of superphosphate and 80 to 100 kg of potassium sulphate would be required at the initial stage.

Prepare raised nursery beds 60 to 80 cm wide and 12 to 15 cm high of any suitable length

A week before sowing treat the soil with a mixture of formaldehyde and water in the ratio of 1: 100 Soil treated with this mixture must be kept covered with alkathene for 72 hours.

Four hundred grams of seed is enough to plant one hectare. The seed should be placed one cm deep in rows marked 8 to 10 cm apart Sprinkle water after sowing, if necessary.

When seedlings are about 15 cm tall, they should be transplanted with a spacing of 60 to 75 cm between rows and 45 to 60 cm between rows and 45 to 60 cm between plants, depending upon the season and variety. Irrigate the field immediately after transplanting.

Top dress twice or thrice with 300-400 kg of amonium sulphate or C.A.N. Two or three sprays of one per cent urea at an interval of 15 days are beneficial.

Irrigate the crops every 10 to 12 days in winter and 5 to 6 days in summer. Weed regularly, hoeing will keep the field free from weeds Tomato fruit borer is a pest attacking tomatoes. Spraying of 10-12 cc Malathion in five litres of water at weekly intervals can control the pest.

Quality Seeds Production

N.S. Maini

AS THE principal agency responsible for production, stocking and distribution of foundation and certified high-quality seeds of varieties of crops in the country, the National Seeds Corporation has come a long way towards laying the basis for a sound seeds industry in India. The advantages of this specialised seed production and distribution are increasingly reaching the small farmers in the far-flung interiors of our vast country.

Established in 1963 as a Government of India undertaking, it started production and distribution of seeds three years later. An indication of its progress and expansion is available in that, while in 1966-67 it produced and distributed 7,420 quintals of foundation seeds, in 1975-76 the production of foundation seeds shot up to 54,540 quintals. The turnover in 1975 of certified seeds amounted to Rs 19.97 crore.

NSC has pioneered the seed industry. The best expertise is available with the Corporation in foundation seed production, certified seed production, processing, quality control, marketing, training and project formulation and project management.

To ensure that adequate quantities of certified seeds for raising the commercial crops are available to the farmers at reasonable rates, at the time and place where they are needed, NSC has been actively involved in certified seed production of about 210 varieties of 70 crops.

Seed, after harvest, is seldom fit for planting straight-away. NSC has established 36 seed processing plants of its own and helped in the establishment of about 100 plants of others at various places in the country for processing seeds.

Supplementing the work of established certification agencies, NSC inspected in 1974-75 79,200 hectares for quality control. NSC has a four hectare field testing station, where a certain percentage of seed lots are grown-out.

NSC set up its seed testing laboratory in 1968 independently with the indigenous know-how and equipment. Annually, the laboratory analyses between 12,000 and 20,000 samples of a wide range of crop-varieties from various seed production zones in the country. The techniques followed in the laboratory conform to international standards. NSC has recently set up a seed health testing laboratory and has begun to analyse seed samples for freedom from diseases.

Based on market studies and experience, NSC has now developed a wide net-work of about 3,500 sale points throughout the country.

NSC has so far organised 31 seed improvement training courses and eight vegetable seed improvement training courses, usually of 35-40 working days duration.

SYNCHRONISATION

The corporation has been largely instrumental in formulating the Rs 50 crore national seeds programme recently launched in India with World Bank help.

The advantages of specialisation in hybrid seed production are being increasingly shared by the small farmers in the interior of the country. Special efforts were made to increase multiplication of hybrid jowar CSH-5 for the benefit of the farmers. NSC organised seed production in Andhra Pradesh and partly in Maharashtra to overcome the handicap of synchronisation and thereby standardising the quality of seed supply to the farmers. Similarly, in the case of hydrid bajra, NSC took note of the fact that the earlier varieties of HB-3, HB-4 and HB-5 etc. had suffered from the incidence of grainier and argot diseases. A more resistant variety of hybrid bajra BI-104 was accordingly taken up for seed multiplication and NSC could supply sufficient quantities of all varieties to the bajra growing areas.

Possibilities of markets abroad for high quality seeds of hybrid crops are being explored. Domestic requirements for the hybrid seeds are, of course, taken care of.

The marketing net-work is being expanded, especially for the benefit of the small farmers living in far-flung areas. Bulk and transit storage points are being set up at different convenient locations. The selling points are organised in a mann that the farmers may not have t travel long distances to get a sma quantity of fresh seeds of improve varieties and hybrids.

These selling points and deale in the interior do not only me the needs of the farmers for hig quality seeds of cereals but also cash crops like jute and selecte vegetables which are common grown in the areas.

BREAKTHROUGH IN JUTE

NSC has achieved a major breal through in jute seed production areas which are not traditional jute growing. The maximum co sumption of jute seeds is in tl eastern sector. But the highest qua ty jute seeds of improved varieti are produced in the western sect especially Maharashtra.

The NSC is at present organisir production on seven popular varieti of jute and supplying the seed to tl eastern zone. During the curre kharif summer, that is, 1977, tl total quantity sold was 8,600 quint ls covering over 4.25 lakh acres. Ne year the coverage may be abo 7.5 lakh acres.

When NSC undertook this jo it found that while the jute growi areas are in the eastern sector, hi quality seed of jute could not produced in that area because heavy rains at the seed setting sta and that high quality jute seed cou be produced in the western sect especially in Maharashtra. The luctant farmers of Maharashtra we persuaded with sound proposals financial gain to them for undertaki jute seed production. In the beg ning, the NSC could organise j seed production hardly of a f hundred quintals. Gradually as t proposition became profitable, number of progressive farmers ca forward to take up jute seed p duction under NSC's auspices. this venture they had the dual ben of receiving specialised field train in improved cultivation practi free of cost, and side by side a go deal of profit in the proudction seed.

EMPLOYMENT POTENTIAL IN VE TABLES

The National Seeds Corporat is organising a comprehensive p gramme of seed multiplication selected varieties of vegetables co monly used at home and abro The advantages in tapping the ternational market in vegetable se

(Contd. on Page 26)

Constructive Programme

Narayan Desai

REVOLUTIONS have two dimensions. On the one hand, they seek to remove old systems, on the other they try to establish new ones. But very few revolutionaries throughout the world succeeded in striking a balance between these two aspects. Gandhiji was among these exceptional revolutionaries.

Even as he led the struggle against the British Empire, he visualised, launched and organised programmes for the making of a new society. These programmes he called the 'Constructive Work'.

"The Constructive Programme", "he said, "may otherwise and more fittingly be called construction of Poorna Swaraj, or complete independence, by truthful and nonviolent means" "Complete independence," he continued, "through truth and nonviolence means the independence of every unit, be it the humblest of the nation, without distinction of race, colour or creed.

"Imagine", Gandhiji further said, "all the crores of people busying themselves with the whole of the constructive programme which is designed to build up the nation from the very bottom upward Can anybody dispute the proposition that it must mean complete independence in every sense of the expression ?"

It was with this lofty ideal before them that over six hundred constructive workers from all over the country, engaged in a score of activities such as Khadi and village industries, basic education and the propagation of the national language, prohibition and the eradication of leprosy, the service of the Harijans and the Adivasis occupied themselves for three days in a kind of self search.

The Gandhi Smarak Nidhi has been organising these conferences since the Gandhi Centeuary year For the last two years, however, such a conference could not be organised because of the restrictions on freedom of speech clamped by the emergency. Hence, the three-day conference which ended in New Delhi recently provided the opportunity to many workers to breathe some fresh air.

One of the themes that often occupied the minds of the speakers was the role of the constructive workers during the emergency. "We were all divided in our attitude towards the emergency," one of them regretted. "It is necessary to ponder over this matter and decide that this kind of division does not recur among our ranks whenever and wherever fundamental Gandhian values, such as human rights, human dignity, rule of law and justice, or demcoratic functioning are at stake."

The second most important theme was the awareness that the recent change in government did not mean the achievement of goal, it only meant the beginning of the journey afresh. It was said, "Let us not forget the permanent kind of economic and social emergency under which more than half our countrymen are still crushed. This is the time to engage ourselves with redoubled zeal in the process of mass-awakening of these teeming millions".

It was also reminded that no democracy could be real if it were based on Vote-catching. Attempts ought to be made to create and sustain as many democratic institutions at all levels as possible so that the initiative would rest with the people.

IGNORAMAN

Breaks out
into a rhyme
O! for a bail,
No for a jail,
So do I wail
When do I sail ?

Code of Conduct

Some of the participants were aware that revolution, like charity, began at home. They, therefore, suggested a code of conduct for the workers and the institutions.

It was said that the workers should devote some time regularly in activities that would put them into direct touch with the people and that constructive work should be a constant process of self-education for the workers and they should consider no age to be unfit for acquiring new knowledge. Some time in the daily schedule should be devoted regularly for productive manual work.

The code also suggested that the institutions should develop methods of work that would result in more and more participation of all their workers in the decision making process of the institution. The organisation of the institutions should be such that the higher the level of the management, the lesser the authority in executive matters. The importance of austerity and simplicity was also emphasised.

The problem of relationship with political parties was discussed at some length. It was felt that while the constructive workers should be fully alert about political forces prevalent in the country, they may not identify themselves with any political parties.

One of the participants pointed out that the average age of the participants of the conference seemed to be above sixty—a sad commentary on the participation of young blood in constructive work. It was realised by many that the younger generation could be attracted towards constructive activities only when they are co-related with some kind of mass movement, be it the struggle for independence in the days of Gandhiji, the bhoodan-gramdan movement in the fifties and sixties, or J P's movement during the seventies.

"Real Swaraj will come, not by the acquisition of authority by all to resist authority when it is abused. In other words, Swaraj is to be attained by educating the masses to a sense of their capacity to regulate and control authority".

—Mahatma Gandhi

Correcting Distortions in the Constitution

Shanti Bhushan

WHEN the Republic of India was born on January 26, 1950, its Constitution was in many respects unique. Its preamble set out certain high ideals common to all mankind with a view to attaining them, detailed provisions were made to govern the powers and the relationships between the different organs of government and the political units of the union.

At that time, our Constitution also had the not necessarily enviable reputation of being the longest in the world. It rapidly acquired another, namely that of being the one most frequently amended in accordance with its own provisions.

During the first 25 years of its existence, the Constitution had been amended at least 35 times. While the number and frequency of amendments have often been the subject matter of criticism, it does not necessarily follow that the amendments by themselves are questionable. Towards the close of the last century, a well known professor of political science, who also had the distinction of being the President of the United States, Woodrow Wilson, pointed out that law is nothing but a crystallisation of the habit and thought of society. As society changes, law has necessarily to adapt itself to the felt necessities of the times—and the Constitution—the fundamental law is no exception to this rule.

The Constitution cannot be likened to the laws of the Medes and the Persians, immutable for all time, for if that were so it would vanish as did the empire which adopted this rule.

While there is room for an honest difference of opinion as to the value and need for some of the amendments made earlier, they could not be regarded as being contrary to its basic structure or as being contrary to the noble objectives enshrined in its preamble.

The position, however, became different after the proclamation of emergency and the dark period of our history which followed. Constitutional amendments were resorted to not for the purpose of attaining the objectives which the founding fathers of the Constitution and the father of the nation before them had striven to achieve, but to serve temporary political and even perhaps personal ends.

Glaring Instances

It would take me too long to catalogue all of them and it would be sufficient to mention a few of the more glaring distortions effected in our constitutional structure as a result of these amendments Some of these were directly relatable to the proclamation of the emergency and the judgment of the Allahabad High Court unseating the former Prime Minister.

One of the reactions of the government to the decision of the Supreme Court, granting a limited stay of the operation of the Allahabad High Court judgement, was to amend the Representation of the People Act so as to alter with retrospective effect the law relating to the legal issues which were decided or might have conceivably been decided against the then Prime Minister—being equivalent to altering the rules applicable to a game after it had been played.

Such legislation, was itself open to challenge on the ground that it infringed the provisions of the Constitution and consequently resort was had to Constitutional amendments.

Consequently, the Constitution (Thirty-ninth Amendment) Act was enacted by which the Representation of the People Act, 1951, and certain other laws relating to elections including the Election Laws (Amendment) Act, 1975 were inserted in the ninth schedule of the Constitution to render them immune from attack on the ground that they were violative of the Constitution.

The ninth schedule rapidly became an ever-expanding container in which every enactment in respect of which there was even a remote possibility of its being challenged on the ground that it was repugnant to fundamental rights, was cast irrespective of the nature of the enactment and whether the enactment needed or deserved protection.

So rapid was the expansion of the ninth schedule containing the list of enactments which were deemed to be valid, notwithstanding anything contained in the Constiutution relating to fundamental rights, that the schedule which contained 86 Acts before the passing of the Constitution(Thirty-ninth Amendment)Act, came to contain 188 Acts by the time the Constitution (Fortieth Amendment) Act was passed. It is significant that this schedule which was originally intended to include only measures relating to land reform, became a "catch all" in which all enactments which the Government wanted to enact, notwithstanding the fundamental rights, were included. Of these, mention might be made of the Maintenance of Internal Security Act and the Prevention of Publication of Objectionable Matter Act, 1976. The last of these is now no longer with us having been repealed in accordance with the pledge given in the manifesto of Janata party to restore the freedom of the Press.

Some More Equal Than Others

Another significant distortion of the Constitution is to be found in Article 329A which was inserted specially to get over the difficulties caused by the High Court judgment in the election case of the former Prime Minister. Departing from the principle of equality of all citizens before the law, this Article created a special class of persons who were more equal than others. This provided for the constitution of a special authority to decide questions relating to the validity of the election of any person appointed as Prime Minister or elected as Speaker.

Any order of a court or other authority declaring the election of a person holding either of these offices to be void was sought to be nullified and a specific direction was given to the Supreme Court to dispose of pending appeals and cross-appeals in accordance with the amendment effected, thus eroding the independence of the judiciary

The Constitution, as originally enacted, provided that disputes connected with election of the President or the Vice-President, the highest offices in the land, should be disposed of by the Supreme Court, the highest judicial organ.

This wholesome rule was done away with by a new Article 71 which

sought to replace the Supreme Court by an authority constituted under a law of Parliament, thus giving to an amorphous authority greater weight and position in determining a purely judicial dispute than that accorded to the Supreme Court.

Pending the amendment of the Constitution, which can be done only with a special majority in both Houses of Parliament and which majority is unfortunately not available to government in the Rajya Sabha, an effort has been made to correct this unhappy trend by providing in the law that the authority in question shall, in the case of the elections of the Speaker and the Prime Minister, be a Judge of the Supreme Court nominated by the Chief Justice of India, thus restoring to the judiciary its rightful function of deciding disputed elections. Similarly, the Presidential and the Vice-Presidential Elections Act has been amended declaring the Supreme Court as being the authority to try election petitions involving the President and the Vice-President.

RIGHT TO LIFE AND LIBERTY TAKEN AWAY

Reference may also be made to an important amendment made in Article 359 by the Constitution (Thirty-eighth Amendment) Act which was brought into force on August 1, 1975 during the period of the emergency. Before this amendment only the enforcement of fundamental rights could be suspended by a notification issued under Article 359 during the period of the emergency. The effect of this amendment, however, was that not only the enforcement of fundamental rights but the fundamental rights themselves stood suspended as a result of such notification. It was on the basis of this constitutional amendment that it became possible to raise an argument that the right to life or liberty itself was not in existence during the period of the emergency and, therefore, it was possible for any officer of the government during the period of the emergency not only to arrest and detain a person without any ground whatsoever even if such detention could not be justified under the provisions of MISA but that a government officer could put any person to death for any reason whatsoever and no challenge could be raised to such action because there was no right to life itself in existence till the period of the emergency was over.

We then come to the highly controversial Forty-second (Amendment) Act. While a few of the changes effected by it may, like the proverbial curate's egg be good in parts, yet it is basically repugnant to the fundamental concepts of democracy and the rule of law. It would be too long to mention all the unfortunate changes which have been made as a result of this amendment. It would be sufficient to mention a few. Apart from increasing the duration of Parliament and of the state legislatures with a view to prolonging the hold on power of the persons then in office, it curtailed the jurisdiction of the courts.

The power of the High Courts to pronounce upon the validity of central laws, which term, it would be interesting to notice, includes not only laws passed by Parliament but subordinate legislation made by any authority, has been taken away. The result is to drag persons from the four corners of India to Delhi to obtain redressal of their grievances. A special majority for the invalidation of central laws has also been prescribed.

The effectiveness of an independent audit was also curtailed by taking away from the Comptroller and Auditor General the power to prescribe the form in which the accounts of the Union shall be kept and conferring this power on the President, i e. the executive government

STATE AUTONOMY DILUTED

Similarly, the autonomy of the states to enact legislation to check anti-national activities was taken away and conferred on Parliament. Further, the powers thus conferred on Parliament by the new article 31D are so sweeping as to exclude judicial review of the validity of any such law. The article is also so wide in its scope that even legitimate criticism of Government or trade union activities could be brought within the description of anti-national activities.

Finally, Article 368 of the Constitution was amended so as to preclude challenge to the validity of any constitutional amendment even on the ground that the procedure prescribed by that very article, such as the requirement of a special majority or the requirement of ratification by the state assemblies, had not been followed.

The above is only a brief enumeration of the several distortions which have been brought into our constitutional structure during the period after the declaration of the recent but unlamented emergency. In fact, the list would be prolonged indefinitely.

It is obvious that steps should taken to correct these distortions a to restore the Constitution on t path shown by the father of t nation and our constitution make Such correction is one of the declar objectives contained in the ma festo of the Janata Party.

But such correction would not an easy task. Apart from the tec nical and the legal difficulties, has to be kept in mind that t Constitution can be amended on if a special majority for that purpo is available to support the measur in both the Houses of Parl ment.

The present government does n have the necessary majority in t Rajya Sabha. The necesary suppo for enacting any such measur would be forthcoming only if the is a vigorous public opinion in favo of correcting the distortions whi have been deliberately introduc Once the popular feeling manife itself, then it is possible that t necessary majority would be for coming.

It is primarily for the peo themselves to be alert in this directi and give the necessary impetus a direction to their representatives Parliament, for the primary respo ibility for their happiness and we being rests with themselves. It h been said and rightly that if t secret of happiness is freedo the secret of freedom is eternal vi lance and stout hearts □

NUCLEAR POWER

"It is unspeakable. It is th ultimate transgression and think they are just crackpot who do it. It's a Mafia. It i not intelligent and not respo nsible behaviour to put into th world these beastly substance and then say, "Oh leave it t us. We will see that nothin leaks out"... and anyway, i doesn't solve any problems There is no sizable nuclea programme (that is economical unless you go to the breede reactor, and that is anothe dimension of violence."

E.F. Schumacher

C.D. In the New Context

Haripad R. Subramonia Iyer

THE major problem of modern government is maintaining and developing all aspects of social and economic life of the entire people as well as optimum ecological development; hence the need for integrated socio-economic planning and of matching styles of administration at different levels. The gap between economic and social indicators calls for integrated approach so that economic growth with social justice is possible within the framework of democratic order. In short, economic and social development should go hand in hand.

The concept of integrated rural development is at once old and new. It is old in the sense that Mahatma Gandhi advocated it. He said that village life must be touched at all points. To Gandhiji, every village must be self-sufficient to meet its most basic needs and should consist of people bound together in bonds of mutual cooperation and interdependence His conception of a village was that it should have its own sanitation facilities, water works ensuring clear and adequate water supply, house of worship for all, a common place for meeting and grazing, cooperative dairy, khadi and village industries for providing supplementary occupation for the peasants, primary and secondary schools, compulsory services of village guards, and village panchayats for settling village disputes. In short, he advocated integrated total development of the entire rural people and full and balanced development of the entire rural areas and development of village panchayats as autonomous democratic village republics within a sovereign democratic republic.

Means of Ending Privileges

The concept is new in that the community development programme with community and area approaches and extension education and community organisation as its methods is a comparatively novel developmental strategy applicable to all countries of the world. In other words, community development is a unified approach to the multi-dimensional problems of rural areas-problems of poverty, illiteracy, ill-health, idleness, ignorance and subsequent weak motivation, squalor, chronic food shortages, social and economic oppression and exploitation, lack of housing facilities, over-population, superstition, traditionalism, conservatism, regional socio-economic imbalances, low level of living, urban explosion, lack of capital, low agricultural productivity, poor means of transport and communication and traditional feudal attitudes.

The privileged who operate effecitvely as a pressure group are able to maintain the status-quo of allocation of resources and the deprived majority who cannot operate as a pressure group continued to be discriminated against in resource allocation The socially, economically and educationally underprivileged sections of the society have to be brought into the national mainstream of life if the minimum of social and economic justice and political freedom is to be achieved. The importance of community development is not just that it can effectively answer some of the needs of the rural people, but it can provide an effective means of eliminating privilege.

It is concerned with the basic problem of creating a sense of cohesion or unity amongst the entire people at a time when highly disruptive forces are at work in society.

Integrated Administration

The need for optimum administrative efficiency is another factor responsible for integrated rural development. The need is for coordination and co-operation in administrative activities. Hence there is need for certain administrative arrangements which aim at the transformation of the existing general administrative structure into welfare cadres rather than at the establishment of a separate and distinct welfare administration.

The community development programme must be conceived in a manner which recognises the indivisibility of the development and welfare of the individuals. An administrative arrangement which attempts to coordinate and integrate all the development efforts in a given geographical area under one roof is required.

In all societies there exists in the mass of the population a great reservoir of energy awaiting use. India is rich in human resources not merely in terms of number, but also in terms of its quality, capacity and potential. The calibre, integrated approach has its major purpose of mobilising and utilising some of the energies for constructive purposes.

An integrated planning approach includes the conception of a system of not only goal and means but also the agents of integrated development which are reciprocally dependent. The nature of national development depends upon the extent to which governmental and non-governmental agencies can participate in the process of integrated socio-economic planning, development and administration. There is need to provide mechanism to ensure that the relevant development agents concerned participate and are involved in the formulation of policies and programmes of integrated rural development. The formulation and implementation of integrated socio-economic development programmes depend upon not only an effective administrative system but also on the functional capability of the development agents who are both governmental and non-governmental agents including self-help or voluntary organisations. Rural development plans and programmes should be based on the felt needs, and urges of the people. The relative roles of the union, state and local bodies in integrated rural development should be clearly specified and well-defined. There is difference between the concept and role of local bodies in developed societies and in developing societies. Panchayati raj bodies should reorient themselves so as to take a major share in the integrated development of entire rural communities. ☐

Democracy is a kingless regime infested by many kings who are sometimes more exclusive, tyrannical, and destructive than one, if he be a tyrant.

—Benito Mussolini
(Fascism)

On the whole, with scandalous exceptions, democracy has given the ordinary worker more dignity than he ever had.

—Sinclair Lewis

Instrumentation : Big Strides

—SuhbashJ . Rele

INSTRUMENTATION LTD., a public sector enterprise in Kota, Rajasthan, has moved a long way in a decade of its existence. During 1976-77, the Company achieved an all-time high turnover of Rs 15 crore almost trebling it in three years and thus establishing an average 40 per cent growth rate in the last three years. Profits have gone up from Rs 47.88 lakh in 1975-76 to Rs 115 lakh in 1976-77. With orders worth Rs 66 crore on hand and several under negotiation, the company expects a high rate of growth.

The Palghat plant of the company, which manufactures control valves and allied items, is now in its second year of operation and has reached a production level of Rs 162.68 lakh. The unit has now reached the break-even stage. The project report had visualised this to happen by the fourth or fifth year.

The company has been supplying instrumentation and control equipment both on retail and on systems basis for the export market Exports during 1976-77 amounted to Rs 85 lakh against a target of Rs 70 lakh. The erection and commissioning work at Tuanka Ja'afar Thermal Power Station in Malaysia is almost complete.

Orders From Abroad

Very recently the company secured an export order worth 10 7 million Malaysian dollars from the National Electricity Board of Malaysia for a turn-key instrumentation and control system for a thermal station of Prai near Penang in Malaysia. The order was secured against keen competion.

The company has begun the production of gas analysers and accessories. Telephone exchange sets worth Rs 28.5 lakh were manufactured. Trial production for selector switches, synchronising control of tilting burners, site thermometres, and solenoid valve resistance temperature detector B-1 has been completed and they are expected to go on stream this year.

In 1976-77 instrumentation schemes were provided for eight thermal power stations in the country. Instrumentation and control systems for fifteen more thermal power stations are in advanced stage of completion. The company has already indigenised about 98 per cent parts of existing Russian range of instruments supplied to various projects covering a business of about Rs 600 crore.

R&D efforts have resulted in the development of several sophisticated instruments like versions of miniature potentiometric indicators, resistance temperature detector type B1 and modified type B1 for nuclear power stations. Work for conductivity meters for all line measurement and control is over and these items have been undertaken for production.

The turnover of the company is expected to increase by about Rs 100 crore in the next three years.

CALCUTTA U-RAIL

A Feat of Engineering

R.K Bansal

THE COUNTRY'S first underground railway system, the Calcutta U-rail, is round the corner 1980 is expected to mark the beginning of actual trials on the 2.5 kms of the nearly 16 5 kms. long Rapid Transit System, mostly under ground, from Dum Dum to Belgachia, being constructed by the Metropolitan Transport Project (Railways)

The project estimated to cost Rs 250 crore is divided into 17 sections and work on eight of these, covering over five kms. is in hand

When completed, the Calcutta RTS will have 17 stations averaging a distance of less than one km. The proposed high speed trains would run at a frequency of less than two mts during peak hours. On an average nearly 300 trains each way per day running between Dum Dum and Tolleygunge will ultimately carry 16 to 20 lakh passengers daily.

Some of the important features of the Rapid Transit Systems are : all trains will have a uniform class of accommodation, the journey would be mostly through an underground RCC box tunnel, all trains will have automatic overspeed protection with cab signalling system, and fire warning and fire fighting arrangements, adequate communication system will be available within the train and with the world outside, the trains will run on ballastless track laid on concrete, the tunnels would be fully ventilated with the provision of cooled air, and there will be no interference with surface transport or air pollution hazard.

The RTS trains would run on electric traction with 75 volts DC current drawn from the third rail and will have a maximum speed of 80 kms/h. The running time between Dum Dum and Tollygunge including 15 halts would be a mere 34 mts.

Alongside the construction of the box-tunnel, the design as well as indigenous development of equipment required for power supply, air-washery, ventilation system and signalling and telecommunication is also progressing according to schedule. The system would required about 40 megawatts of power supply which has been ensured. Action has also been initiated to develop an indigenous prototype RTS coach to be manufactured by the Integral Coach Factory, Madras. The traction equipment is likely to be supplied by a public sector undertaking in the country.

With unhampered flow of inputs, it is hoped that the construction work on the Calcutta U-rail will be completed by 1984-85.

Indian Railways Today

EVERY DAY the Indian Railways carry eight million passengers and haul over six million tonnes of freight in 11,000 trains run over 60,231 route km. with 7,056 stations across the country.

The trains run over a total of 1.3 million km. on an average a day—about three and a half times the distance to the moon. They carry more than half the total passenger traffic in the country and two-thirds of the freight traffic.

Owned and working under the single management of the Central Government, the Indian Railways are Asia's largest and world's fourth largest rail system. They are the country's largest public sector undertaking with total assets of Rs 53,450 million and annual revenue of Rs 17,670 million, and the largest employers with a staff strength of 1.7 million.

The Railway Board, a high-powered body of specialists in different fields working under the overall supervision of the Minister, controls and directs the operations. The network is, however, divided into nine railway zones, for convenience of administration, and each zone is a large system in itself.

With a modest start in 1853, when the first train ran between Bori Bunder and Thana in Western India, a distance of 35 km., the system has grown into its present mammoth size over the years. At the time of Independence, Indian Railways were mostly dependent on imports. Today this vast system is sustained and developed essentially on its own strength.

Self-reliant Growth

The Railways have developed an integrated organisation for research, design and standardisation as a substantial base to advance the indigenous manufacture of all railway equipment. Today we are self-suffisient in design and manufacture of almost all types of railway equipment including some of the more sophisticated types. The import content in the railway purchases has been brought down to eight per cent against almost total dependence on imports before 1947.

The Chittaranjan Locomotive Works (CLW) was set up near Calcutta in West Bengal in 1950 for manufacturing steam locomotives. When the traffic demands started outstripping the limitations of steam traction, the CLW turned to production of electric locomotives and is now producing even dual-current AC/DC locomotives—the most sophisticated in the world.

Production of diesel locomotives was taken up in the country in 1964 at the Diesel Locomotive Works, at Varanasi in U.P. Over a thousand locomotives have already been manufactured there.

Earlier, the Integral Coach Factory had been established in Perambur in the South in 1955 to manufacture and furnish passenger coaches. Over 10,000 coaches of more than 60 types, including air-conditioned sleeper and chair car, electric multiple unit coaches, AC 2-tier coaches, and double-decker coaches have been produced by this factory so far.

Besides these three major production units, the Railways have a number of workshops. Some of these took up production of wagons in 1960. This, coupled with production in other public sector units, has made the country self-sufficient in meeting internal demands.

The railway system has developed in a manner that it transports bulk commodities over long distances leaving short-distance traffic to roadways. The share of bulk commodities like foodgrains and fertilisers, petroleum products, steel, ores, cement, and coal, in the overall volume of revenue-earning rail traffic is over 80 per cent. Such freight traffic of commodities which are essential to the growth of the economy and well-being of the people sometimes yields revenue less than the cost. But as a public utility service, Indian Railways carry and discharge this obligation. Correspondingly some of the high-rated traffic goes over to road.

Another interesting feature of our Railways is that 74 per cent of the freight traffic is carried on trunk routes connecting metropolitan cities of Delhi, Madras, Calcutta and Bombay.

To help faster movement of goods, super express goods trains operate to fixed timings on trunk and other important routes. Again, a Quick Transit Service (QTS) is available between principal commercial centres with delivery of goods guaranteed within a fixed period for a nominal surcharge. The container service provided door-to-door damage-free fast transport and the freight forwarder service consolidates and carries small consignments in wagon loads at relatively lower rates.

Passenger Amenities

Over the years much attention and outlay has been given to improving passenger amenities and comfort, speed and frequency of the trains. Single-class fast-running trains were introduced some years back to relieve overcrowding on trunk routes. More recently long-distance superfast and inter-city trains have also been introduced, to further reduce overcrowding on the trains. New lines are being laid to open up backward and neglected areas; and it has been decided that all new long-distance trains to be introduced in future will be classless.

Under the planned development of the railway system, the massive increase in the demand for goods and passenger traffic has been met largely by increasing the capacity of the already existing routes through gauge conversions, doubling of track, traction modernisation and improvement of signalling and communication systems. Workshop facilities have been expanded in step with the increasing repairs and maintenance requirements.

Export Potential

The technical advancement and expertise gained by the Indian Railways over the years is now being exported for developing the railway systems in some Asian and African countries. India-made railway equipment is in use on the railways in many countries including Burma, Sri Lanka, Thailand, Korea, Nigeria, Saudi Arabia, East Africa Iran, Iraq, New Zealand, Hungary, Poland, Turkey, Canada, France and the Philippines.

Two public sector organisations—the Rail India Technical and Economic Services (RITES) and the Indian Railway Construction Company Ltd. (IRCON)—have been set up. RITES have undertaken consultancy contracts in Syria, Iran, Zaire, Iraq, Ghana, Nigeria and Tanzania.

The last three months have witnessed a remarkable improvement in the performance of the railways in all directions. For example the passenger traffic has gone up by about 10 per cent when the Budget had anticipated only six per cent increase. Goods traffic has kept pace with the Budget projections. Ordinary working expenses hav

gone down. With the result the net financial position is a gain of over Rs 33 crore in three months.

Similarly, the production in the major production units in CLW, DLW and ICF has outpaced the output in the corresponding three months of 1976 by 36 per cent in terms of money.

Much of this has been possible by a new and enlightened industrial relations policy. Workers, participation in management is being encouraged and extended and welfare schemes for workers are getting greater attention.

QUALITY SEEDS

(*Contd. from Page*..15)

are numerous. There is a big scope for exchanging valuable technical knowhow on quality vegetable seed production. Secondly India can create a dent in the international market for vegetable seeds by supplying high quality seeds of internationally renowned varieties at highly competitive prices and thereby earn valuable foreign exchange. Thirdly, production of high quality vegetable and flower seeds is highly labour intensive, and provides scope for large scale employment for farm labour in the production of sophisticated varieties of seeds.

Already in acordance with some arrangements agreed to with a leading company of Europe, the NSC is developing its knowhow in the production of seeds of varieties commonly grown in Europe by multiplying the seed materials of the varieties popular there. Side by side, it is also affording valuable opportunity to the Indian farmers and scientists to compare the potential of vegetable varieties grown in Europe with those of India with regard to their crop yields, acceptance in the market and in the kitchen. This has opened new vistas of joint research in agriculture and has established India's superiority in being able to supply top quality seeds to any part of the world and also suitable for any agro-climatic condition. It has been established that Indian varieties like Punjab chhuahara tomato, Indian varieties of melons and onions find widespread acceptance in markets abroad. Besides, these efforts are also helping in organising production of high quality seeds of selected flower varieties. □

Plea For Ceiling on Non-Agricultural Incomes

Ayodhya Singh

LAND REFORM in the traditonal sense means changes in land tenure, specially the redistribution of land ownership and the reform of this kind may be by division of large estates into small holdings or by transfer of ownership of the land from a large property holder to a tenant cultivator of a small holding

Thus, the essential difference between the old and the new approaches is that while the former concentrates on changes in land tenure, reform has now come to mean something approximating to land improvement. It is as much an agricultural policy as it is a social policy.

The first plan recognised that the pattern of land ownership and cultivation is a fundamental issue in national development and set out a broad outline of policy.

The second plan sought to remove impediments in the way of agricultural production arising from the character of the agrarian structure and create conditions for evolving as speedily as possible an agrarian economy with high levels of efficiency and productivity. A second policy goal was an egalitarian society to be achieved by abolition of intermediary tenures; tennacy reforms including regulation of rents, security of tenure and enabling the tenants to become owners, ceiling on land holdings; consolidation of holdings; and agrarian reorganisation.

The third plan envisaged implementation of the policy.

In the fourth plan, suggestions were made for a reorientation of land policy, having regard to the technological developments in agricultural and social requirements of the time and for a review of the provisions in the existing legislation and measures for their expeditious implementation.

In the fifth plan special attention has been given to the tenancy problems. The important guidelines that took shape over the successive plans were reiterated.

Most of the necessary legislation has been passed and implemented. Most of the states have also taken steps to vest in the tenant homestead rights.

Ceiling is an important aspect of land reform which must be implemented for social justice. It may help in solving the problem of elimination of poverty, if applied with firmness. But, it is not possible to eliminate big holdings, in the true sense of the term, so long as there is no ceiling on non-agricultural incomes. Society has to be reformed as a whole. Socialism in compartments cannot be effectively implemented. □

COOPERATIVES

(*Contd. from Page*..14)

"I should like this (Cooperation) to be considered from an even broader point of view of reorganising our vast rural areas, of building a new social structure The essential characteristics of a cooperative or panchayat are close contact, social cohesion and mutual obligation. This is vital for building up gradually a new structure for our rural society This is an enormous undertaking".

The role of cooperatives and the "Cooperative Sector" has to be considered in the context of building a strong rural India.

TOMATOES

(*Contd. from Page* 14)

For controlling dumping off disease seed treatment with Agresan G.N. or drenching the soil of the nursery with Captan is recommended. Early Blight and Late Blight can be controlled by spraying Diathene Z-76 two gm mixed in one litre of water twice or thrice.

Leaf Curl is the most severe virus disease of tomatoes. It can be checked by controlling the vector (white fly). Spraying with 0.05 per cent Malathion or Falidal is effective Tomato is also attacked by root knot nematode. Growing a resistant variety like S—120 is recommended in affected areas. Chemicals like DD and Nemagen can also control the nematode.

The fruit is ready for harvest in 75 to 100 days after transplanting A good crop can yield 200 to 350 quintals per hectare. □

Vice-Grip of Urban Elite

Krishna Chandra Roy Chowdhury

IN MOST of the backward economies unemployment, like Janus, has two faces: mounting urban unemployment and surplus labour in the rural sector silted up in seasonal unemployment or underemployment. At the bottom, these two types of unemployment are the two facets of the same phenomenon. Urban unemployment is merely a spill-over of rural underemployment in traditional agriculture. In fact, it is possible to show that underdeveloped countries like India in seeking to accelerate the rate of growth of income under their impressive five-year plans have accentuated the problem of unemployment and inequality in the distribution of income.

Each society develops its own rules of the game to determine the manner in which work and property are to be combined in production, and the way the income is to be distributed among the members of the community. In primitive economies income from work and income from property were inseparable. Under feudalism land is owned by a select group of families whose titles date from past history and are established by the appropriate rules often sanctioned by law or religion. In feudal societies work is provided by peasant families who own little or no land and very few of the capital goods (ploughs and livestock); they finance their own consumption partly out of carry-over from harvest to harvest and partly out of loans from the landlord or the moneylender. The landlords make the level of rents what they think right, and if they are ruthlessly exploitative they fix them at a level which permits peasants a bare level of subsistence. They enjoy the whole technical surplus of production over the subsistence minimum, which appears as income from property. An increase of population reduces the surplus per man but it increases the total of rents, up to the point where the marginal product of labour is equal to the subsistence minimum. When income per head is reduced to subsistence level with the reduction of the size of holding, growth of population can go no further and rents are at the technically possible maximum. Under feudalism the level of rents, given technical conditions, depends upon the amount of labour When population has reached a size at which the marginal product of labour is equal to subsistence, competitive demand for land establishes the same level of rents as would obtain under the landlord's monopoly.

Limiting Factors of Migration

A subsistence economy with semi-feudal agriculture adjusts itself to the problem of growing population in two ways. First, it seeks to provide for the economically redundant members of the community by a pooling of economic activities and of the total output within a family or a more extended group. Surplus labour is looked upon as part of the nature of things, and ways are devised to provide work for each member of the family who shares in the family income not necessarily in relation to the value of his individual contribution which is roundabout zero. Everybody is kept busy on farms so as to maximise total output which after the payment of rent is shared among the members of the extended family.

In this system the economics of work and product allocation under a share-alike rule give the member a subsistence income that exceeds his marginal product which is round about zero and approaches the average net product after the deduction of rent. The value of this average net product in effect establishes the reserve price for his labour outside agriculture. Other things being equal, the surplus labour in agriculture will not be prepared to accept employment elsewhere which might deprive him of his right to share in the family income unless the wage offered is much in excess of this reserve price in the rural sector. Thus zero marginal productivity of labour in agriculture does not result in either a misallocation o labour or in an unlimited supply c labour to the nascent capitalist eco nomy in the urban sector. Th phenomenon of disguised unemp loyment in agriculture need no cause a reduction of wage rates i industry where there may be emp loyment opportunities. Rural under employment is thus compatible wit equilibrium wage rates in industr the floor to which is provided by th reserve price of labour in agriculture

Secondly, these quasi-feudal eco nomies seek to adjust themselves tc the growth of population by devel oping rules of morality under which the wealthier members of the com munity, the landlords and business men, feel obliged to fill up thei households with a retinue of ser vants, priests and artists. In a tra dition-bound society this obliga tion almost becomes a status symbol which extends even to the middl class. Strange as it may seem, even the hard-headed businessmen are embroiled in this spirit, and follow ing the social mores, burden thei enterprises with a large number o useless clerks, peons and othe hangers-on. What is given as wages is more in the nature of charity than payment for serious labour which is neither given nor expected.

As population grows it becomes more and more difficult to keep the surplus labour in this unproductive occupation. The growing numbers spill over into casual trades in the cities; markets are crowded with pedlars and stall-holders making occasional sales. A great many people are forced to offer their ser vices as shoeshines or porters o to trade at street corners in tiny lots of matches or buttons; there is a vast reservoir of mechanics, dock workers, construction workers and others who get such casual employ ment as thay can, averaging per haps a day, a week or less. Al though everybody seems to have some sort of work, however grea the pressure of population, the are in disguised unemployment eking out a miserable existence i squalor and poverty.

Breakdown of Social System

There are thus two elements i the enforced idleness of labour in quasi-feudal economy like India the landless labour in agricultur steeped in rural underemploymen and seasonal unemployment, an disguised unemployment in th urban sector. They subsist in th penumbra of the organised secto of the economy in agriculture an

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Shri Roychowdhuri is Professor of Economics, University of Burdwan.

industry where profit maximisation rules. They constitute what is called the informal sectors of the dual economy. The primary characteristic of the informal sector is the sharing of income and under-employment.

Development planning in backward economies has led to a breakdown of this social system with its age old resilience without bringing in its place a viable economic system that can absorb the surplus labour. Dualistic models of growth, sometimes explicitly but more often implicitly, have constituted the basis on which broad development strategies have been formulated. Economic growth has been sought to be accelerated by a transfer of surplus labour from low-productivity agriculture to the high productivity manufacturing sector. The strategy of growth has been an increase of effective demand through a substantial rise in expenditure on public investment financed largely by budget deficits, leading to a sharp rise in prices. The result of the last twentyfive years of development planning has been remarkable no doubt in the face of unprecedented growth of population. What has come as a shocking surprise, however, is the growth of massive unemployment and inequality in the distribution of income.

Kuznets once advanced the hypothesis that the secular behaviour of inequality follows an inverted 'U-shaped' pattern with inequality first increasing in the early stages of development with a reversal of this tendency in the later stages. Following Kuznets, the proposition that the distribution of income worsens with development at least in the early stages has been advanced in a much stronger formulation with the possibility of less absolute impoverishment of the lower income groups. Needless to say, this state of affairs is in sharp contrast with the fundamental objectives of development planning; the diminution of poverty and human misery. It seems that development in its endeavour to achieve self-sustained growth has lost sight of its ends.

In general, we find three aspects of the development process which appear to be systematically related to the degree of inequality and growth of unemployment in a planned economy like India:

(1) Intersectoral shifts due to allocation of resources in favour of heavy industry and relative neglect of the traditional agricultural sector;
(2) Choice of technology.
(3) Absence of redistributive fiscal policy.

Prime Cause of Disparities

Intersectoral shifts under planned development may be looked upon as a possible mechanism through which the process of development affects income inequality and the level of employment. Kuznets argued that development typically involves accelerated growth of the industrial sector which slowly absorbs population from the low income, relatively stagnant agricultural sector. Such a process would lead to an increase in relative inequality in the early stages of development and under certain conditions would generate the U-shaped curve. Adelman and Morris have also emphasised this dualism in the structure of the many developing countries: the existence side by side of a technologically and institutionally backward agricultural sector, and a technologically advanced and well-organised industrial sector. The more pronounced becomes the dualism under planned development the greater the incidence of inequality. As the growth of the modern industrial sector is an essential ingredient of the growth process, economic development itself is one of the prime causes of the growth of income inequality in developing economies.

As scarce capital and other resources are pre-empted by the modern, typically privileged urban sector to the detriment of productivity and income levels in the agricultural sector, the intersectoral differences in income tend to widen. These differentials could have been narrowed if the accelerated economic growth of the modern sector had created a strong demand for the surplus labour in agriculture. But the range of policy instruments favouring capital-intensive development and the choice of technology under the five-year plans have actually discouraged the use of labour in the growing industries. Industrialisation stimulated by import substitution has created high-cost enterprises with a bias against the use of labour-intensive technology. Protection by making the exchange rate overvalued allows capital equipment to be imported cheaply because of low duties on such imports. The technology embedded in this capital equipment is designed to save labour and its import has contributed very little to the expansion of employment. Artificially low interest rates coupled with artificially high wage rates due to trade union pressure and government action have concealed the social cost of capital and encouraged the entrepreneurs to use capital-intensive technology. Investment licensing has also encouraged the tendency towards mechanisation by offering special incentives to invest; the decision to build, alter or expand the manufacturing capacity is to be submitted to a licensing committee which has neither the competence nor the wish to understand the purpose of the system and to devise a set of explicit economic criteria of choice that can counteract the bias towards capital intensive technique. The policy of import substitutions has also been an invitation to the great oligopolistic corporations to set up capital-intensive production units inside the tariff walls.

High-Wage Economy

On a more fundamental plane, the range of policy instruments that have encouraged capital-intensive development stems from a technique of planning whose professed objective is a high growth rate of the national product. This is essentially a Victorian concept of development or "progress" as it was called then. The operational concept of this development is more output preferably industrial output. To maximise industrial output, industrial technology is imported directly from the developed countries by encouraging foreign firms to set up plants within the country or indirectly when indigenous capitalists or governments, following foreign models, at first import equipment, and later reproduce some elements in it. This technology evolved in the developed economies under pressure of high wages obviously requires a high cost of investment per man employed; it is manifestly inappropriate to the situation of an underdeveloped economy with surplus labour and limited investible resources. Given the spectrum of eligible techniques, a lower degree of mechanisation requires a smaller cost of investment per man, a larger future output per unit of investment and more employment compared to a more mechanised technique. A higher degree of mechanisation is, however, more profitable because, with this technique, the saving on the wage bill is greater than the value of output foregone. Such a technique is claimed to be more advantageous to the underdeveloped eco-

nomy because it yields more surplus to expand investment in the future even if it offers less employment now. The implicit assumption is that the surplus or profits are sure to be invested and not to be consumed by the capitalists on luxury. Experience shows, however, that capitalists in underdeveloped countries are unlike their Victorian counterparts; they are yet to shuffle off the habits and traditions of feudal landlords: they prefer consumption to accumulation. They prefer readymade techniques imported from abroad and are helped by a government whose predilection for large impressive schemes is not the most efficient way of using the limited resources for the eradication of poverty and unemployment.

Absence of a redistributive fiscal policy in an underdeveloped country like India has accentuated the problem of income inequality and unemployment. The need to allocate a larger share of public expenditure for the support of heavy industries in the public sector and the necessary infrastructure in the urban area has reduced the share of development expenditure in the rural sector. Rural public works to absorb some of the surplus labour in agriculture and agricultural development projects, especially in the form of irrigation schemes, credit facilities, and mixed schemes involving land clearance, provision of improved seeds, storage facilities and extension service can go a long way in reducing poverty and increasing employment. On the other hand, a progressive tax policy can do much to reduce income inequality in developing economies But the institutions and structure of political power stand in the way of progressive taxation so that the increasing ratio of indirect taxes to total tax revenue means in effect a more than proportionate reduction in the income of the lower and middle income groups whose real income tends to decline with rising prices. It is well-known that commercial farmers and rural landlords to whom most of the benefits of the "green revolution" have accrued pay little or no taxes. Given the power structure they manage to turn the administrative measures to their advantage.

What can be done to mitigate the growing unemployment and income inequalities and their deleterious effects on social stability in the developing countries? Although the answer to this question, for a number of reasons, is not easy, it is possible to advance some general suggestions which can form the basis for specific and concrete measures. To get a process of development going in a quasi-feudal economy requires three ingredients: (1) a redistribution of land and rural public works; (2) capital-saving innovations in industry along with land-saving innovations in agriculture; and (3) a tax policy designed to ensure sufficient restraint on consumption that permits resources to be used for investment.

Small Holdings

Rural under-employment arises from an unequal distribution of land holdings among families. Smaller holdings are by and large more intensively cultivated than larger ones and, given the abundant supply of rural labour, total production is likely to increase by a redistribution of land It is technically possible to use the rural underemployed (or their seasonal idle time), as the Chinese have shown, to improve irrigation, check erosion, build roads, and so on, but the individual property in land is an impediment to such schemes. There is great scope for land saving innovations in agriculture because they raise output per acre without reducing labour per unit of output (as in the use of fertilisers), but steps must be taken to ensure that the rich farmers do not get a larger share of the miracle seeds and fertilisers and other inputs that go with them than the poor peasants With redistribution of land the peasant will have sufficient security to improve the land and the incentive to part with the marketable surplus to feed the wage labour in industry.

Although development is rightly identified with industrialisation in the general sense in which it applies as much to agriculture as to manufactures, there is need to switch the emphasis from grandiose, capital-intensive heavy industries to projects that save capital, increase productivity and absorb labour. There are many possibilities of using what have come to be known as "intermediate technologies" that involve methods and equipment more productive than primitive handicrafts but requiring much less investment per man and per unit of output than western technology. The highly mechanised imported technology is an extension of capitalist ideology to a semi-feudal economy with surplus labour where it is highly inappropriate. It requires more investment to provide employment, and starts on a scale that requires a large share of scarce capital and other resources. Planned industrialisation under the policy of protection has created high-cost enterprises with huge excess capacity; the consumer goods they produce are suitable for consumers with incomes much above the average. To create markets for these goods an unequal income distribution is needed. The inequalities in income distribution is a necessary consequence of the adoption of modern technology. Multinational corporations operating in developing countries have also contributed to this process.

Vested Interest

Government policies are largely determined by the strategy pursued. The decision-makers in government are part of the elite who benefit from the high growth policy and the adoption of western technology which tend to generate inequalities; those who benefit gain power, wealth and influence and set in motion policies that reinforce the inequalities and the pattern of development which give rise to them. These forces of wealth and power inhibit the adoption of redistributive fiscal policies that can threaten their power and privileges. Moreover, redistribution of income through progressive taxation of income without redistribution of assets (land reforms, nationalisation of industrial property) is not likely to be successful. Such a radical redistribution is a revolutionary requirement which is not palatable to democratic societies so that a policy of incremental redistribution has been proposed. This is the Chenery method of redistribution through growth. This strategy will involve switching of additional incomes from consumption of luxury goods to investment in small-scale industries for the production of consumer goods for the common man. One wonders whether the planners will be bold enough to pursue this policy in a society where politics dominates over economics. □

If by the mere force of numbers a majority should deprive a minority of any clearly written constitutional right, it might, in any moral point of view, justify revolution.

—Abraham Lincoln

Yojana Quiz

1. What is the Fata Morgana?
2. Does sound always travel at the same speed as through air?
3. What makes a lead pencil write?
4. Why cannot we walk straight when we shut our eyes?
5. What is the blue light on the sea at night?
6. Why do moths fly round a light?
7. Why are the spokes of a mangle wheel curved ?

nswers

1. It is a form of mirage known in the Mediterranean, and been named Fata Morgana or Morgan the Fairy, after half Sister of King Arthur to whom legend assigned places which are suggested by the effects of refraction u the distant landscape. It can be seen at the straits of Messi
2. No; the lighter the gas the faster the sound travels throu it if the pressure and temperature are the same.
3. A "lead" pencil is made up of tiny crystals of carbon. T form of carbon is called graphite, from the Greek word writing. The crystals are small and of such a shape that tl can easily be rubbed away from each other.
4. The reason is not in our stride, but in the difficulty in bal cing. Our eyes are of the greatest importance in helping to balance our bodies and without them the weight of c bodies is apt to go too far on one side or the other.
5. The sea is really full of living matter and of matter whi has been alive-the bodies of dead sea-creatures, some anin and some vegetable. These are slowly oxidised by the ox gen which dissolved in the sea-water, and has been got fro the air, and as they are oxidised, or burned, they give out t faint light which we see.
6. In the dim light of evening and night they can see ligl coloured flowers, and as they depend on flower nector f food they fly toward anything bright. When they fly rou a light, they are trying to get into it as if it were a flowe
7. Metal always contracts on cooling, so that both wh and spokes are liable to crack after casting; by making t spokes curved, the wheel is much less likely to come to har Spokes shaped this way give much more play when the me contracts on cooling.

Quotation Box

We are bad soldiers and bad citizens but as poisoners we have no rivals in the entire world. We succeeded in making a world event out of something as stupid and vapid as Fascism.

—**Indro Montanelli Editor of an Italian Newspaper**

* * *

You can catch me by the ear when I make a mistake. But do not catch me alone catch all the colleagues of mine if mistakes are committed. That is the kind of people's power we want to build.

—**Morarji Desai**

* * *

I have been wedded to my work.

—**Miss Abha Maity Union Minister of State for Industry**

* * *

It was when colour came that things started becoming loud and vulgar.

—**Kamini Kaushal on Indian Films**

* * *

I have suggested two programmes as the next stage for achieving total revolution. One is mass political education so that the masses could be prepared for bringing about changes in their own life and in the life of society The other item I have suggested is the organisation of people's committees from the village level upwards.

—**Jayaprakash Narayan**

* * *

Males are a vast breeding experiment run by females.

—**Irren De Vore Harvard Anthropologist**

* * *

There can be little doubt that the bonus decision was influenced by populist rather than economic consideration.

– **Editorial in the Statesman**

BOOKS

An Open Economy Hodel

Trade Protection and Economic Policy : Essays in International Economics *by Dr. Alok Roy; The Macmillan Company of India Ltd., Delhi,* 1976; *Pages XIV—73; Price Rs.* 30]

THE SEVEN essays of outstanding merit included in this slim book cover a wide range of issues in international economics like the implications of intermediate inputs, non-traded goods, domestic distortions, non-economic objectives, smuggling, government budget constraint and wealth effect. Primarily meant for professional economists the areas covered are the positive aspects of the pure theory of trade, welfare aspects and the balance of payments theory. Hence, they are not of direct relevance to the conundrum facing India of estimating effective protection rates and economic resource costs and the general problems of dovetailing policies for economic and trade development.

The author's efforts are directed towards showing how some of the standard theorems (the Heckscher-Ohlin, Stolper-Samuelson, Factor Price Equalisation and Rybczynski) can be generalised on the one hand to a two factor—three commodity framework that is non-tradable and how all commodities can be used as intermediate inputes and final products, on the other, simply by considering factor intensity rankings in terms of *total* coefficients as distinct from *direct* coefficients. The general equilibrium framework and the alternative measures to effective protection to cope with non-traded inputs carries forward the work of Jagadish Bhagwati since 1964 and seeks to underline the significance of the modifications that are necessary in the various theorems already mentioned. The author is of the view that the results could vary according to the fact that the traded intermediate commodity is assumed to be domestically produced or solely imported from abroad.

That the existence of a positive import duty (export subsidy) is superior to free trade when domestic distortion causes underporudction of the import (export) commodity may not necessarily hold in the presence of a non-traded sector is a point that is often disputed. The author has dealt with this in chapter 3 obviously for the reason that this has direct relevance to Indian economic policy and the various problems faced by the country. The next three chapters carry forward the arguments based on the theorem of optimum tax structures to achieve various non-economic objectives. Here again, the author carries forward the earlier writings of Bhagawati and Srinivasan and subjects them to rigorous mathematical analysis. The choice between the first best taxes or second best taxes (with uniform tax rates confined to a class of commodities or different rates of taxes both within and outside that class) is sought to be decided by proving the theorem which is nevertheless, vitiated by the presence of smuggling. Smuggling, as stated by the author, renders invalid the traditional superiority of import duties over production subsidies as alternative means to cut down import below the free trade level.

The author next proceeds to extend the analysis of the short-run impact of alternative government policies in an *open economy model* taking explicitly into account the wealth effects that arise out of the government budget deficit and the current account trade surplu The 'short run' implications that have hitherto remain unexplored have been taken in hand with a prelimina distinction between a number of alternative concep of monetary and fiscal policies. The author terms h conclusions based on this exercise to be an 'unorthodc possibility' in so far as it points towards the desirabili of a high degree of international capital mobility throug bond-financed government expenditure which is likel to be less expansionary than tax-financed expenditur under flexible exchange rate system. By the same toker fixed exchange rate system could create havoc.

The major contribution of these essays lies in thei using the framework of the general models and examinin the advances made thereon so far on strictly empirica lines and highlighting certain policies to usher in an ope economy. A deeper involvement with the domesti realities, however, is bound to assist the author in disc arding both the general theories and their partial modi fications effected by some of his seniors in the professior based on their insights into India's trade policies sinc late fifties. Tersely worded and highly original, these essays are at once a reflex of the hiatus that divides ou sophisticated academics from the pragmatic levels o thought in various organisations that has buttressed the entire foreign trade apparatus for decades. All the same, under Indian conditions these empirical studies offer scope for numerous simulation exercises in furtherance of policy options.

—B.N. Nair

Organisation in Industry

Organisation Theory in an Open System *by Anant R. Negandhi; Kennikat Press Corp and Dunellen Publishing Company, Inc.* 1975; *Pages* 325; *Price* £-9.

THIS book is a description and analysis of a research project initiated by the generous funding from the Ford Foundation, U.S.A. Mr. Negandhi has produced another very interesting and readable book, designed for organisation theories. The project was conducted in a number of developing and developed countries.

The book's layout is designed around Negandhi's notion that the organisational and enterprise effectiveness of an industrial firm in a given industry, with a given size and technology, are functions of management practices. Management practices are themselves functions of external environment and socio-cultural variables and of the firm's organisational concern toward its task agents or publics. In support of this notion, he presents the data on developing and developed societies.

The first chapter defines the salient characteristics of the closed and open systems and provides some illustrative examples of organisational studies. The second chapter sets out the research methodology and design—definition, conceptualisation and operationalisation of major variables, samples and methods of data collection. Chapters three through eight provide a comparative analysis of management practices in the United States parent companies, the United States subsidiaries, and the comparable local firms in the seven countries. This is one source on consultation which provides data on environmental and socio-cultural variables, allowing one to make inferences and interpretations that might or might not be the same as the author's. In chapters nine and ten, the managerial effectiveness of organisations is examined and in the last chaper eleven, the universality of management practices and principles.

According to the author the socio-cultural behaviour patterns, as well as economic conditions, are more similar than different in developed and developing countries. Negandhi has based many of his conclusions on contextual and socio-cultural and environmental variables. It would have been better if he had made a study of a wider range of variables.

Nevertheless the book has germinal value and provides the curious among organisational scholars with thought provoking readings.

—**Pradeep Kumar Saxena**

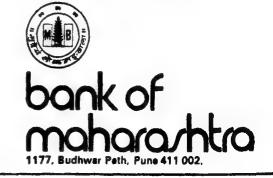
Money, Trade & Fiscal Economics

Fiscal Economics *by K.P.M Sundharam and E.N. Sundharam (Price Rs 15)*; **Money Banking Trade and Finance** *by K.P.M Sundharam (Price Rs 18)*; **Foreign Exchange : Principles and Practices** *by K.K. Andley (Price Rs 16); all published by Sultan Chand & Sons, Delhi*

PROFESSOR K.P.M Sundharam is quite popular especially with the undergraduate students of the Indian universities as well as with those preparing for the various professional examinations. His style of writing is quite simple and easy to follow. The fourth edition of the book "Fiscal Economics" besides providing theoretical knowledge on the subject also includes for the first time a comprehensive study of a number of issues in the Indian fiscal economics like economic classification of the budget; public accounts Committee; estimates committees and separation of accounts from audit; Contingency Fund and Consolidated Fund and; Sixth Finance Commission. Also included are for the first time theoretical discussion on functional finance, federal finance and local finance

In his second book "Money, Banking, Trade and Finance.,,—whose seventeenth edition has appeared this year—Professor Sundharam has added three chapters partaining to National Income Accounts; Basic Concepts of the Theory of Employment and Output; and Equilibrium Level of Income and Employment Here he deals with both Keynesian and post-Keynesian tools of analysis Simple questions have been added at the end of each chapter, providing a good basis for objective type of tests for students. The book gives a detailed study of the Monetary economics, the theory of income and employment banking and financial institutions, Indian currency and banking

In his fourth edition of the book "Foreign Exchange; Principles and Practices" Professor Andley has added fresh material of current interest and taken out matter which had become outdated. For instance, he has included the 1974 Revision of the Uniform Customs and practices for Documentary Credit; some of the new facilities provided by the E.C.G.S., the Foreign Currency (Non-Resident) Account scheme of the banks that deal with foreign exchange for the Indians residing abroad, Deferred Payment Arrangement in Foreign Trade; Long-term Forward Exchange Cover to Exporters provided by the Reserve Bank of India; Amendment of the I.M.F Articles of Agreement He has also rearranged the chapters to make the treatment of the main issues more logical, besides revising and enlarging the chapters on the Arithmetic of foreign exchange. Though the book has been particularly addressed to students preparing for the bank (C.A.I.I.B) examination it would be found useful even by those interested to have a working knowledge on the subject of foreign exchange.

—**V.S. Mahajan**

Development Notes

Three-fold Increase in Tea Estates

There was three-fold increase in the number of tea estates in the country during the period from 1961 to 1975. According to statistics published by the Tea Board of India, the total number of estates registered with the Tea Board rose to 13,264 in 1975 from 9,499 in 1961. South India accounted for the bulk of the increase, from 6,978 to 10,738. Kerala's share was the highest 4,203 in 1975 against 1,976 in 1961. During the period the area under tea increased to 363,303 hectares from 331,229 hectares, in North India the area rose from 256,928 hectares to 289,503.

Shipping Tonnage Crosses 5 Million GRT

India is the first maritime developing country in the world which has attained the shipping tonnage of over 5 million GRT According to the annual report of the Ministry of Shipping and Transport for 1976-77, the country's operative tonnage crossed the 5 million GRT mark last November comprising 335 ships of 50.36 lakh GRT. In addition, 33 vessels of 7.08 lakh GRT are under construction.

Indian shipping continues to operate on all the important international trade routes. During the year, it extended its coverage to the India-Latin America sector, provided direct shipping facilities to Mogadishu in Somalia and Mozambique and introduced a new monthly global service to the USA The share of handling bulk cargoes by the Indian flag vessels in 1976 was over 56 16 per cent as compared to about 42.93 per cent in the previous year.

Higher Production Target for Heavy Industries

A production target of a little over Rs 1000 crore has been fixed for the public sector undertakings under the control of the Department of Heavy Industry for 1977-78 This represents about 26 per cent increase over the production of Rs. 829 c ore achieved during 1976-77. The profits of these undertakings are also expected to improve correspondingly to Rs. 72 crore.

New Record in Marine Export

Marine products export reached an all-time high with 66.840 tonnes valued at Rs 189.50 crore in 1976-77 against 54.463 tonnes valued at Rs 124 crore, in 1975-76, recording a growth rate of 23 per cent quantity-wise and 52 per cent in terms of value. Frozen shrimps, canned fish and dry fish are the three major items exported by the country.

SFDA Projects Help Small Farmers

Over four and a half lakh small and marginal farmers have benefited so far from minor irrigation projects undertaken under the central sector scheme of the SFDA (Small Farmers' Development Agency) initiated during the fourth plan period. The evalution studies conducted recently by the Reserve Bank of India and other independent organisations of the scheme show that the subsidiary occupation programme like dairying and poultry had benefited over four lakh small and marginal farmers. Adoption of improved agricultural practices in the project areas has helped 34.35 lakh farmers.

Grants-in-aid of Rs 112.77 crore have been released so far by the Centre to the 160 SFDA projects The outlay in the fifth plan for the SFDA is Rs 174.50 crore.

Beas Meets Sutlej

The waters of the Beas were poured into the Sutlej at the first-ever man-made confluence of the two major rivers at Slapper in Himachal recently in a mighty bid to augment the water resources of the Govind Sagar Lake of the Bhakra complex. The waters of the two rivers will serve the teeming millions of Punjab, Haryana and Rajasthan. The project was completed in 12 years at a cost of Rs. 380 crore.

About 35,000 workers and 2,500 engineers worked day and night to complete the linking of two rivers through two tunnels of 13 km each linked by a 12 km-long open channel. The tunnels have a diametre of 28 ft each.

Impressive Rise in National Income

The national income, at constant (1960-61) prices recorded an impressive rise of 8 8 per cent in 1975-76 as against an increase of only 0.2 per cent the previous year. The rise in the national income as disclosed in a study on national income, savings and capital formation (1975-76) prepared by Reserve Bank's Department of Statistics has been mainly attributed to the large increase in foodgrains production which rose from 100 million tonnes to 121 million tonnes.

The RBI study showed that in per capita real terms (1960-61 prices), income in 1975-76 rose by 6.6 per cent; the highest growth rate ever recorded The previous high was of 5.9 per cent recorded in 1967-68. At current prices, it meant a rise of 1.6 per cent.

The rise in capital formation in public sector was, however, more substantial than in the previous year, Rs 1,682 crore, against Rs 790 crore. Net domestic capital formation at current prices rose from Rs 7,156 crore in 1973-74 to Rs 9,576 crore in 1974-75 (+33.8 per cent) and further to Rs 11,058 crore (+5.5 per cent) in 1975-76. As a proportion of net domestic product, it was 16.2 per cent in 1975-76 compared to 14 7 per cent in 1974-57 and 13.0 per cent in 1973-74.

Fertiliser Production Goes Up

About Rs 110 crore were saved in foreign exchange through increased production of nitrogenous and phosphatic fertilisers during 1976-77. Their combined production stood at 23.80 lakh tonnes against 18.55 lakh tonnes during 1975-76. This is revealed in the annual report of the Ministry of Chemicals and Fertilisers for 1976-77. The report said that nitrogen production in 1976-77 was 19 lakh tonnes as compared to 15.35 lakh tonnes during the previous year, registering a 23.7 per cent growth rate. Output of phosphates stood at 4.8 lakh tonnes against 3.20 lakh tonnes, an increase of 50 per cent.

Production of single superphosphates, which had been falling during the past few years, not only improved but registered a 73 per cent growth rate in 1976-77. Further, six single-superphosphate plants, which had suspended production in the previous year on account of high inventory and financial difficulties, resumed production. In the case of nitrogen, capacity utilisation increased from 61.9 per cent to 72.5 per cent and of phosphates from 51.6 per cent to 69.4 per cent. The report said that at the beginning of the year, 20 large size fertiliser plants having a capacity of 25.09 lakh tonnes of nitrogen were in operation.

Nine-fold Increase in Power Generation

The power supply industry has made significant progress since the planned development era began in 1951. Total installed capacity during this period has increased nine-fold from 2.4 million kw to 22 million kw. According to the report of the Energy Ministry for 1976-77 by the end of the fifth plan the total capacity was expected to reach about 30 million kw. The total length of transmission and distribution lines which was about 30,000 circuit km in 1951 stood at 1.5 million circuit km by the end of 1976-77. An addition of about 2,900 circuit km was expected during the year.

Allocation of funds in 1976-77 for the entire power sector was of the order of Rs 1453 crore-32 per cent more than 1975-76. The per capita consumption of electricity during 1976-77 would be about 115 kwh as against 109 kwh assessed for 1975-76

Crash Programme to Develop Cash Crops

A crash programme for an overall development of various commercial crops of Kerala with World Bank assistance to the tune of Rs 62 crore has been set in motion. The scheme is not at the cost of food crops but as a supplementary to it.

Under the crash programme with World Bank aid, all varieties of crop like rubber, coffee, tea, cardamom, tapoica and cashew besides coconut will get a new push in cultivation and production. Twentyfive thousand hectares, mostly nationalised forest land, would be brought under cashew plantation.

New Coal Reserves Found

Prospects of coal production in the country have further brightened with the discovery of new reserves in a number of virgin areas in Bihar and West Bengal, indicating gross sub-terranean stock of about 20,000 million tonnes. The Geological Survey of India in course of its recent explorations, located a seam having a gross reserve of 1,144 million tonnes in Hura and Chuperbhita basin in Rajmahal hills of Bihar. The Chuperbhita basin with a 874-million tonne reserve, incidentally, is the largest coal-bearing area in the Rajmahal hills.

The GSI in its restructuring of mines through systematic exploration in and around working coal fields has also spotted "beyond the known limit" a reserve of 747 million tonnes of coal in the eastern extension of the Raniganj basin in West Bengal. Elsewhere at Meja in Bankura district, south of the river Damodar, the deposits in the recently discovered coal seam are estimated at 180 million tonnes.

Nickel Ore Deposits Found in Cuttack

Orissa contributes nearly 56 per cent of the country's total mineral production in terms of value, according to the Geological Survey of India The State with an area of 155,400 square kilometres occupies a pre-eminent position in iron ore, manganese ore and chromite production besides contributing dolomite and limestone in substantial quantities. The GSI, which covered about 85,000 square kilometres in the State with geological mapping, has for the first time established the existence of a "workable" nickel ore deposits in Cuttack district pushing the State into an enviable position on the mineral map of India.

The occurrence of lead in workable concentrations, proved over a strike length of 1000 metres in Sundargarh district, and the recent discovery of economically viable base metal mineral deposits in another district, are landmarks in the history of mineral exploration in the state. The GSI and other allied institutes have located as many as 27 types of minerals in the State.

World Bank Aid for Farm Project

The World Bank has approved a Rs 23.9 crore project to boost farm production in 17 districts of Rajasthan. The project will help increase the yield of all major crops in these districts by 25 per cent in five years. Based on the phenomenal success achieved by a similar project in the Rajasthan canal and Chambal command areas, it is aimed at transferring improved technology to farmers through constant training. The scheme, introduced in the Rajasthan canal and Chambal command areas about two years ago, has helped double the paddy yield. In the case of other crops also, the increase in output per hectare has been encouraging.

The project will provide direct employment to 3,500 persons in rural areas for three years.

The Ministerial Chair and The Bleeding Process

"To think that your occupation of the Ministerial chair will be vindicated if you serve the cities only would be to forget that India really resides in her 7,00,000 village units What would it profit a man if he gained the world, but lost his soul in the bargain ?

"Our cities are not India. India lives in her seven and a half lakhs of villages, and the cities live upon the villages They do not bring their wealth from other countries The city people are brokers and commission agents for the big houses of Europe, America and Japan. The cities have co-operated with the latter in the bleeding process that has gone on for the past two hundred years It is my belief based on experience that India is daily growing poorer The circulation about her feet and legs has almost stopped And if we do not take care, she will collapse altogether .

"I regard the growth of cities as an evil thing, unfortunate for mankind and the world, unfortunate for India The British have exploited the villages. The blood of the villages is the cement with which the edifice of the cities is built I want the blood that is today inflating the arteries of the cities to run once again in the blood vessels of the villages

'We in the cities become partners in the blood-sucking process, which phrase, however bad it may be, truly depicts the state of things I have known something of this (village) class. I have brooded over their wants, and if I was a painter I could draw a picture of them with their blank eyes, without a spark or lustre or life in them. How are we to minister to them? Tolstoy gave the picturesque phrase, 'Let us get off the shoulders of our neighbours'. If everyone performs that single operation, he would have rendered all service God requires of him...

"The real question is how to bring about man's highest intellectual, economic, politcal and moral development In this, there should be an equal right and opportunity for all In other words, there should be equality between the town-dwellers and villagers in the standard of food and drink, clothing and other living conditions. In order to realise this equality today, people should be able to produce their own necessaries of life, that is, clothing, foodstuffs, dwellings and lighting and water .

"If the village perishes, India will perish, too. It will be no more India Her own mission in the world will get lost The revival of the village is possible only when it is no more exploited Industrialisation on a mass scale will necessarily lead to passive or active exploitation of the villagers as the problems of competition and marketing come in Therefore, we have to concentrate on the village being self-contained, manufacturing mainly for use . .

"The true Indian civilisation is in the Indian villages The modern city civilisation you find in Europe and America, and in a handful of our cities and which are copies of the Western cities and which were built for the foreigner, and by him But they cannot last. It is only the handicraft civilisation that will endure and stand the test of time. But it can do only if we can correlate the intellect with the hand ..

"Independence must begin at the bottom Thus, every village will be a republic or panchayat having full powers. It follows, therefore, that every village has to be self-sustained and capable of managing its affairs even to the extent of defending itself against the whole world. It will be trained and prepared to perish in the attempt to defend itself against any onslaught from without. Thus, ultimately, it is the individual who is the unit This does not exclude dependence on, and willing help from neighbours or from the world It will be free and voluntary play of mutual forces Such a society is necessarily highly cultured in which every man and woman knows what he or she wants and, what is more, knows that no one should want anything that others cannot have with equal labour

"America is the most industrialised country in the world, and yet it has not banished poverty and degradation That is because it neglects the universal manpower and concentrates power in the hands of the few, who amass fortunes at the expense of the many The result is that its industrialisation has become a menace to its own poor and to the rest of the world

'If India is to escape such disaster, it has to imitate what is best in America and the other western countries, and leave aside its attractive looking but destructive economic policies Therefore, real planning consists in the best utilisation of the whole manpower of India .

"According to me, the (ideal) economic constitution of India and, for the matter of that, the world, can be universally realised only if the means of production of elementary necessaries of life remain in the control of the masses. These should be freely available to all as God's air and water are or ought to be, they should not be made a vehicle of traffic for the exploitation of others. Their monopolisation by any country, nation or groups of persons would be unjust. The neglect of this simple principle is the cause of the destitution that we witness today, not only in this unhappy land but in other parts of the world, too

—MAHATMA GANDHI

A White Elephant Called New Delhi

I have in mind certain monopolies legitimately acquired, undoubtedly, but which have been brought into being in conflict with the best interests of the nation. Let me give you an illustration which will amuse you somewhat, but which is on natural ground. Take this white elephant which is called New Delhi. Crores have been spent upon it. Suppose that the future government comes to the conclusion that seeing that we have got this white elephant it ought to be turned to some use. Imagine that in Old Delhi there is a plague or cholera going on, and we want hospitals for the poor people. What are we to do? Do you suppose that the national government will be able to build hospitals and so on? Nothing of the kind. We will take charge of those buildings and put these plague-stricken people in them and use them as hospitals, because I contend that those buildings are in conflict with the best interests of the nation. They do not represent the millions of India. They may be representative of the monied men who are sitting here at the table, they may be representative of His Highness the Nawab Sahib of Bhopal or of Sir Purushottamdas Thakurdas or of Sir Phiroze Sethna or of Sir Tej Bahadur Sapru, but they are not representative of those who lack even a place to sleep and have not even a crust of bread to eat. If the national government comes to the conclusion that that place is unnecessary, no matter what interests are concerned, they will be dispossessed, I may tell you, without any compensation, because, if you want this government to pay compensation, it will have to rob Peter and pay Paul, and that would be impossible.

—*MAHATMA GANDHI*

Printed at Universal Advertisers (The Unitiser Press) E/2, Jhandewalan Extn., New Delhi-110055 and Published by the Director, Publications Division, Patiala House, New Delhi-110001.

XXI 17 1-14 October 1977

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Gandhi Jayanti Number

THE IDEA THAT WAS GANDHI

EVIDENCE BEFORE THE HUNTER COMMITTEE

Q. You can resort to no other remedy to oppose the irresponsible, foreign officials and that is why you have started this movement. Is it not?

A. I cannot say that with certainty. I can conceive the necessity of *satyagraha* in opposition to the would-be full responsible government. Our ministers can never claim to defend themselves on the score of their ignorance, whereas such a defence is available today for the English officers.

Q. But with all the rights of self-government we shall be able to dismiss the Ministers.

A. I cannot feel, *on that point*, so assured for ever. In England, it often happens that ministers can continue in the executive even though they lose all the confidence of the public. The same thing may happen here too and, therefore, I can imagine a state of things in this country which would need *satyagraha* even under *home rule*.

Q. Would you think that there should be no unrest coming after the *satyagraha* movement?

A. Not only I do not think so; I would be disappointed if there were no unrest in case Anasuyabehn and I were to be arrested. But that unrest will not take the shape of violence. It pains a *satyagrahi* to see others suffering; *satyagrahis* will follow each other to jail. I *do wish* for such unrest.

—*Young India*

The President and the Physician

TASKS BEFORE MR VERGHESE

Will Planning Commission Measure Up?

WHEN DEFIANCE BECOMES DUTY

Even the most despotic government cannot stand except for the consent of the governed, which consent is often forcibly produced by the despot. Immediately the subject ceases to fear the despotic force, his (the despot's) power is gone. I would risk violence a thousand times rather than risk the emasculation of a whole race. Non-cooperation with evil is as much a duty as cooperation with good. No tyrant has ever yet succeeded in his purposes without carrying the victim with him, it may be, as it often is, by force. Most people choose rather to yield to the will of the tyrant than to suffer for the consequence of resistance. Hence does terrorism form part of the stock-in-trade of the tyrant. But we have instances in history where terrorism has failed to impose the terrorist's will upon the victim. Non-violence does not mean meek submission to the will of the evil-doer but it means the pitting of one's whole soul against the will of the tyrant. It is possible for a single individual to defy the whole might of an unjust empire. A civil resister is dangerous to an autocratic State, for he brings about its fall by engaging public opinion upon the matter for which he resists the State. Civil disobedience, therefore, becomes a sacred duty when the State becomes lawless, or, which is the same thing, corrupt. And a citizen who barters with such a State shares its corruption or lawlessness. The civil resister ever obeys the laws of the State to which he belongs not out of fear of sanctions, but because he considers them to be good for the welfare of society. But there come occasions, generally rare, when he considers certain laws to be so unjust as to render obedience to them a dishonour; he then openly and civilly breaks them and quietly suffers the penalty for their breach. And in order to register his protest against the action of the law-giver, it is open to him to withdraw his cooperation from the State by disobeying such other laws whose breach does not involve moral turpitude. Complete civil disobedience is a state of peaceful rebellion, a refusal to obey every single state-made law. It is certainly more dangerous than an armed rebellion, for it can never be put down if civil resisters are prepared to face extreme hardships. When you have failed to bring the error home to the law-giver by way of petitions and the like, the only remedy open to you, if you do not wish to submit to it, is to compel him to retrace his steps by suffering in your own person, that is, by inviting the penalty for the breach of the law. By its very nature, non-violence cannot "seize" power, nor can that be its goal, but non-violence can do more: it can effectively control and guide power without capturing the machinery of government. That is its beauty.

—Mahatma Gandhi

YOJANA

Volume XXI Number 17
New Delhi
1 October, 1977
9 Asvina, 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Y o j a n a seeks to carry the message of the Plan, but is not restricted to expressing the official point of view.

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Editorial Office: Yojana Bhavan, Parliament Street, New Delhi-110001. Telegraphic Address: Yojana, New Delhi, Telephones: 383655, 387910, 385481, extensions 402 and 420, Circulation: Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription: Annual—Rs. 15, Two years—Rs. 30. Three years—Rs. 42, Foreign Subscriptions: One year—£2.70 or $ 5.50. Two Years—£4.50 or $ 9.00. Three Years—£6.30 or $12.50 Single copy—twelve pennies or $ 0.25.

At the end of our task,
Let us proudly bring Thee our scars and
Lay at Thy feet
The soul that is ever free and
Life that is deathless

—Rabindranath Tagore

Remembering the Mahatm

OF ALL tyrannies, the worst is the secret despotism of thos who, while they tyrannise, appear to honour the rebe That Mahatma Gandhi is reduced to formal, even ceremoi ial remembrance year after year is tragedy enough. That authc rity is the central participant in this ritual is worse. Never ha there been an attempt either to comprehend or assert the idea which, more than all else, was Gandhi

Remembrance is glory when it is humble; when it is ceremon it is worse than humbug Honouring is fearsome, for it is almos a kind of telling the people to forget, now that the debt has bee paid Memorials are not a measure of grateful memory, bu of boastful condescension. When they are expensive, as the often are, the ostentation is a measure of insincerity.

The Gandhi centenary, eight years ago, by a unique coin cidence, was also the year of the fiftieth anniversary of Jallianwal Bagh How many in this country know that it was the firs major event of the Gandhi era? Only a week earlier in tha fateful April of 1919, Gandhi had given his call for a nationa hartal to protest against the Rowlatt Bills

Gandhi's appositeness in the April days was in his harmony with the national mood of protest. And what a unique protes it was! Out of this baptism rose a new nation. The "day of reckoning" of which Sir Michael O' dwyer had spoken was hastened by the magic of Gandhi.

The mad spree of murder by Sir Michael's picked British officers, the crescendo of revolt, the "calculated act of inhumanity" at Jallianwala Bagh, the dark deeds on the crawling lane, the aerial bombing of Gujranwala, the flogging, the crowning affront of Edwin Montagu's praise of Chelmsford and O' dwyer, the purse to the stupid general Dyer, and the House of Lords resolution—do these not remind us of a cynical cruelty by "native" rulers not long ago? Had those who were struck by the bullets in Amritsar died in vain? Where was the nation that Gandhi built?

IS THERE anything in our polity today, even after the magnificent and noble response of the people, which makes us feel assured that this nation built by the blood and toil of the martyrs to a cause, will not once again be subjected to the kind of insult which it suffered till not long ago? The infamous emergency, we are told, was legal (even as O' dwyer's death dance perhaps was) and the criminals, it would seem, are to be arraigned for their lesser follies Is this less of an affront to our people than what was offered by Montagu and the British House of Lords?

If we are loyal to the memory of a unique struggle led by a unique leader, we should treat treason as treason and not merely as ordinary wiles and stratagems of a political cabal. The mask of legality, hiding the true face of tyranny and megalomania, should be ripped, so that no one in future will dare hold our noble people in bond and yet go about as an honourable citizen seeking protection of the law.

(Contd. overleaf)

This, done without vengefulness and rancour and as a measure of duty to our heritage, is the least we can do if we wish to remember Mahatma Gandhi in this year of rebirth of a nation.

Tyrants rise and fall, and each new tyrant seeks to lull our sensibilities by an appeal to the baser instincts of national glory, order, progress and stability. The higher spirit of man rejects them, in fact fights against them.

If remembering Gandhi is at all necessary, its worth lies in renewing the truth that man alone can resist the tyrant, not the arms and that the journey never ends.

DR. LOHIA said the struggle of the future would be between Gandhi and the atom bomb. Mao's saying that this new weapon is a paper tiger is only a variation of Gandhi's : "Non-violence is the only thing that the atom bomb cannot destroy".

What both implied was that when a people decide to defy (as the great Vietnamese people did), even the most fearsome weaponry and the worst of despots are powerless. The atom bomb will have to contend with non-cooperation.

"No power, no State", said Gandhi. Since "the state can never be weaned from violence, to which it owes its existence", the initiative for the destruction of power cannot come from those whose sustenance it is. It can come only from the common people. The non-cooperation idea was Gandhi's unique contribution to the process of human confrontation. The Naxalites may do well to consider, if, along with Marx, Lenin and Mao, Gandhi also may give them some idea of how to fight against social, economic, political and cultural tyranny. They may find that, perhaps, besides being the most democratic, the Gandhi idea is also the most practical.

THE HUMAN struggle is always between the state representing organised violence and a people whose only strength is a resolve not to submit to any despotism. That struggle is not confined to India but this land of Gandhi has a duty by the world. □

Rolling Plan: New Responsibilities and Challenges

SHRI CHAVAN'S reaction to the rolling plan idea would seem to be more in the nature of the usual noises which an opposition party is supposed to make than a studied comment. Earlier some party advantage was sought to be derived from a criticism of orientation of policy towards employment and rural industry. A party claiming to have some respect for a man called Gandhi could at least have refrained from describing a bias for the small sector as primitive or atavistic.

It would seem that the Congress party has convinced itself that its policies have either led to or were about to lead to some kind of millenium; and is anguished, angry and helpless in the face of some sinister mischief to disturb this idyllic state of affairs The very least that was expected of this party was that it would get out of its world of make-believe, namely, that there was some aura of sanctity about its economic and social policies.

In any event, one does not see how perspectives are lost in any effort continuously to readjust sights. If anything, the rolling plan idea will ensure that short term adjustments, inevitable in any situation, will always fit into a longer and larger view of things. Every annual plan will be drawn up with an eye to the physical and financial targets for the following five years. Thus the advantage of five year forward planning, far from being given up, is sought to be retrieved from much ossification, as was often the case before.

The styles of the annual plan exercises had been a little cramped because they had to be fitted into some kind of straitjacket. With projections now sought to be continuously refined in the light of the achievements, constraints and challenges as they become apparent, looking ahead is likely to be more purposeful.

What is now being attempted is not a mere departure from practice. There is no need to be apologetic in saying that it is a radically new approach The scheme at once strengthens the role and participation of the Planning Commission in evolving social and economic strategies and in setting the tone of policy. Continuous evaluation and re-evaluation being the premise behind the rolling plan idea, the Commission's dynamism will be increased manifold. Planning ceases to be a one-time exercise in five years, and, becomes a process of fixing the sights continuously ahead, a process of improvisation, refinement and continuous forward movement with a great degree of sensitivity imparted to the entire idea of social development

THE ROLLING plan or the "roll-on" plan, as some have chosen to call it, at once not only invests the Planning Commission with a certain authority which it has not had so far but casts on it a heavy and exciting responsibility Its role in long term and short term policy formation is now crucial. This will call for a great deal of ingenuity, intensive home-work, ceaseless and unremitting vigilance and quickness of response. Details become at least as important as the overview.

While the controversy over the supposed devaluation of the Planning Commission will now be stilled, the rationale of its future existence will entirely depend on how it accepts the new challenges. Jawaharlal Nehru had, in his last days, been a greatly disillusioned man where the Commission was concerned. Speaking at a Science Congress session he remarked on the bureaucratisation of the planning idea. The Commission had become flabby and stodgy. An imaginative restructuring of the Commission's secretariat and functionalisation of its wings is immediately called for. Policy and execution are integral in one sense, but the Commission should not let executive responsibilities overwhelm its policy prerogative A new and meaningful relationship between the Commission and the administrative ministries will have to be worked out. Annual plan exercises are now ritualistic and *ad hoc*, often left to a mercenary civil bureaucracy with blinkered approaches. All this must change. A functional bureaucracy fully comprehending the ethos of the Commission has to replace the hierarchies in Yojana Bhavan.

The rolling plan should not induce a feeling that targets are expendable. Clearly they are not. They are set within a defined scheme of priorities and no irresponsibility or indifference can be permitted in the name of flexibility.

Planning, after all, is not an end in itself. It is not a field for academic cleverness. It is an instrument for realising within a reasonably short time some socially desirable goals. These goals must be well articulated. The rolling plan idea is a good starting point of an exercise in a ten or twenty year perspective to be broken into short and medium term targets. The yearly reviews and projections will then have the merit of a continuous movement towards a clearly understood social objective and even a quickening of the pace of this movement. Without this perspective and without a constant reminder of the goals of policy, planning—rolling or static—will be robbed of its social content and will end up as a management gimmick of a few smug experts satisfied with their cleverness and scholarship.

A polemical wordy duel about the validity of the new policy can be sidestepped if the policy is shown to work. Time is of the essence and the one indicator of earnestness will be the disappearance of leisureliness in the well-appointed rooms of Yojana Bhavan.

A MAJOR CRITICISM of the new government has been that, with all the bombast of a brave new world, it did not seem to be in a hurry and was drifting and dithering. The rolling plan idea, together with the discussion at the first meeting in July of the reconstituted Planning Commission, could well be setting the pace of a new policy.

The objectives of the new government have been repeatedly stated—full employment in the quickest possible time, faster development of agriculture and rural industries and full use of local resources, to mention a few. The policy frame for these objectives has to be radically new The new policy, judging from Shri Morarji Desai's address to the July meeting of the Planning Commission, would embrace new concepts of village environmental planning making for a high rate of intellectual, aesthetic, moral and spiritual attainment, new systems of education, appropriate population policies including aspects of migration, new administrative styles, a radical water management system, and, of course, a valid wages, incomes and prices scheme based on discipline, austerity and all round sacrifice

The Legal Hurdle

SHRI MORARJI DESAI has repeated his argument that the emergency, however unwarranted and otherwise reprehensible was perhaps not *illegal;* therefore, it was a little difficult to proceed against those who carried out this dastardly midnight attack on our polity.

Shri Desai readily concedes that some kind of codification of human rights is called for, but this is as yet an uncharted field Despite the great advance in the concept since the second world war, particularly through the efforts of the United Nations, there is much vagueness about how this concept can be given effect to

There has been much discussion about the validity of the Nuremberg trials. There are many who hold that the only sanction for these trials was the military victory of the prosecutors. The worst crimes against humanity under Hitler's orders were not denied. The violation of the various Geneva conventions and other codes of behaviour concerning war prisoners and people of occupied territory was also readily conceded. The criticism was that there was no universally accepted law upon which to proceed against the transgressors.

This was from where the Human Rights Commission probably took off. Subsequently, the field has been widened. Though the member countries readily subscribe to the laudable principles—as laudable as the Te[n] Commandments—they are as irreverently treated a[s] the scriptures by which almost everyone swears.

One readily understands the reluctance of govern[-] ments to give precision to their commitment to basi[c] rights. Nobody in power wishes to give up the right o[f] last resort to the *danda*

What then do we do? The tumbrils and guillo[-] tines after the French Revolution were possible becaus[e] a thoroughly new legality derived its sanction from th[e] nature of the revolution. Seeing what happene[d] in India during the nineteen months, one might wonde[r] what this song and dance was about concerning th[e] reign of terror.

Nothing of this kind has happened in India. Th[e] tyranny came to an end through what its perpetrator[s] admit to be a miscalculation or "let down" by the in[-] telligence. The surge of popular anger was either no[t] anticipated or discounted. Since the transformatio[n] of this anger into a vote did away with the necessity o[f] another kind of upsurge and revolt, one is stuck wit[h] a continuing legality that was the basis of the emergency

Though there is much force in the argument i[n] favour of special and retrospective legislation to mee[t] this rather unique situation, the mischief in such [a] procedure can also not be overlooked.

But are we so helpless? The underlying principl[e] in the Nuremberg trials—which has not been seriousl[y] disputed—is that nobody can take refuge in superio[r] commandment for an obvious act of illegality or in[-] humanity. JP's call to the police and the army is als[o] now seen in the proper light. This applies equally t[o] the civil service. It is unfortunate that the bulk of th[e] civil bureaucracy which not only caved in but overzeal[-] ously carried out the orders has been retained. Th[e] administrative styles remain intact. A simple act of trans[-] ferring all officials of key departments would have had [a] salutary effect Even this has been done in a niggardly ma[n-] nner. Others against whom more than a suspicion exist[s] of overzealous implementation of blatantly unethical ord[-] ers could have been suspended Specific inquiries wit[h] specific charges should have been ordered. It is not [a] question of proving the guilt. The psychological impac[t] of such measures (provided they were done on *bonafid[e]* grounds) would have been immense. Even now thi[s] can be done

Simultaneously, work must start on a charter o[f] inalienable rights. The rights and duties of publi[c] servants which will not be subject to despotic politica[l] dispensation should be codified in a constitutiona[l] enactment There should be no difficulty in getting [a] broad measure of political consensus.

Time is of the essence. Delay would dilute th[e] ethical spirit. One hopes that Shri Desai, whose co[-] mmitment to basic codes of conduct is transparentl[y] sincere, will go about this task with all earnestness, s[o] that the winter session of Parliament, besides rectifyin[g] the 42nd amendment, will also broadbase the cons[-] titutional safeguard against a repetition of the ninetee[n] months' wonder and its child prodigy. And some wa[y] should be found to teach an exemplary lesson to th[e] culprits so that the crime is not repeated.

The Shah Commission

FROM ALL available accounts, the Shah Commi[-] ssion is faced with a stupendous task. To wad[e] through the immense material would itself tak[e]

months. To sort this out is not going to be easy.

It is as well that the Commission has chosen only a few hundred complaints for examination.

Two pitfalls have to be avoided. The complaints, not taken up for examination, should not be thrown into the limbo. They should at least be made available in printed form for sale to the public. The other pitfall is that even the few hundred cases to be enquired into may get bogged down in a lot of legal legerdemain. The procedures must be at once just and quick. Objections can be recorded so that the aggrieved party can always have legal recourse later. The Commission should not tie itself in knots in a kind of over-enthusiasm for legal nicety At this rate, we may even not be able to say that there was an emergency.

More importantly, however, the Commission is running the risk of missing the wood for the trees. "Excesses of the emergency" is a very clever camouflage to hide the fact that the biggest excess was the proclamation itself. It is clear that this was done without prior cabinet decision The Commission, one presumes, will summon the members of the then Cabinet to find out how much they knew in advance and why they agreed to be taken for a ride What evidence did the Cabinet have to conclude that the State was imperilled, not merely an individual? This is important because the proclamation could not have been a sudden decision. A fairly elaborate and surreptitious operation could not have been carried out without some amount of planning. Who did this planning? How was the message conveyed to the officers throughout India? The previous Cabinet Secretary, the Home Secretary, the Director of Intelligence, State Chief Ministers and concerned officers of state governments should be able to say when they came to know of the what, why and how of this *mafia* operation

It is necessary clearly to establish if the emergency had any relation to the purposes for which the provision was incorporated in the Constitution. All apparent evidence leads to a suspicion that it was in aid of an individual, a family and a cabal This is the central theme, the core, the essence of the work of the Shah Commission. Subsequent events can throw light on the prior intent.

The police service association has done a signal service in organising two public seminars. Middle class prudery mercifully is not preventing the senior police officers from doing an honest exercise in self-introspection. This will be an asset for any enquiry. Other service associations can be depended upon to do their duty.

There is a fairly enterprising civil servant who went about saying that he knew how the Cabinet had given prior approval to the emergency. He has been mentioned in the White Paper on the media. Perhaps he may be able to say a little more about what he knew and could not have forgotten.

The demolition, the vasectomy, the genuflection of dignitaries before a spoilt boy are manifestations of a depravity whose origins have to be sought out. Was there a gang which planned every day new forms of sadistic delight? Evidence should not be difficult to get.

What made the press, Parliament and even the highest judiciary accept an extraordinary preversion of constitutional purpose? How did the apparatus of terrorism work? What subtler forms of emasculation were practised?

Enquiry into this basic question is the major task of the Shah Commission. There is a view that a separate Commission to go into this aspect should have been created, But there is some merit in assigning this task to the Shah Commission and in an integral approach to the entire question of how the basis of our polity was sought to be subverted. The Commission may be expected to devise a procedure for quickly arriving at the truth.

We would wish to say that the purpose of the Commission is as much to locate the crimes and the criminals as to expose the mechanism of subversion so that this country, its political system, the bureaucracy, the security services and the organs of free expression and justice can be better prepared to frustate any incipient sign of despotism in future.

Shri Bansilal Protests

IT IS GOOD that a lot is being said, not the least by Shri Bansilal himself, about the handcuffing business.

Leaders of the government, no less than the press, have not been tardy in their disapproval of this noxious practice

The former defence minister has perhaps overplayed his hand. His best friends should have advised him not to protest too much. On the other hand, by writing to the prime minister, he has made it appear that he is a case apart. Shri Desai promptly granted him an interview. This must have further discomfited Shri Bansilal who perhaps feels cheated of a chance to nurse a grievance.

It must have taken some gall for this gentleman to meet a person who, he said, was being fed very well in prison. There is, however, some irony in this search for humanity of one who, till recently, was not capable even of common decency. If he has learnt from experience instead of making it appear that his *amour propre* has been hurt, he should at least publicly acknowledge the graciousness of the people who have made it possible for even the tormentor to have his day in the court, which he might not have had under a regime which he himself buttressed

States Reorganisation

THE PROPOSED splitting of states into viable administrative units should not be limited to the bigger states—bigger in area or in population. The goals of policy should be as much to make for greater accountability to the people as to break linguistic tyranny. The vested interests are bound to make the task difficult but statesmanship lies in explaining the benefits to the people and securing their enthusiastic partisanship in a course which is of intimate concern to them. It would be useful to secure a consensus of the political spectrum. There might be a surprising degree of support.

While, as an interim measure, some of the states can be broken up, an exercise in basic policy should be simultaneously initiated. The policy parameters would include the possible constitutional basis for local administrative units and for enlarging the powers of the states in federal polity. Roughly one can envisage some six thousand panchayat samitis with clearly defined statutory powers. Ideally, if the United States, with a population of less than 250 million can have 50 states, we can have a hundred. However, it will be practicable to have some sixty states, each of a population of about ten million, barring some of the north-eastern and centrally administered territories. Thus, Tamilnadu, Andhra Pradesh, Maharashtra, West Bengal and Madhya

Pradesh can be split into five states each. Kerala, Karnataka, Gujarat and Rajasthan can be broken into three states each. Orissa and Assam can be split into two states each U.P. into ten and Bihar into six.

Each state will have roughly one hundred panchayati samitis. Two chambers, functionally different, will be useful. The house of the people for each state can have 200 members elected on the basis of constituencies of about 50,000 people or electorates of about 25,000 each. The council of panchayats can have 100 members, each panchayat samiti electing one nominee. The council of panchayats will not be a second chamber. It will deal exclusively with sub-federal issues, including the proper discharge of financial, administrative, judicial and developmental functions of the panchayats. It will ensure that the state governments do not usurp the powers and responsibilities of the panchayat samitis.

Similarly at the union level, the Lok Sabha can be elected on constituency basis and the Rajya Sabha can consist of two representatives elected by each state assembly. The Rajya Sabha will not be the second chamber but will look after federal matters over whick the Lok Sabha may not have any jurisdiction.

All this will work only if there is evidence of a ra dical approach to the problems of federalism and loca self-government. With this revolutionary dimension popular enthusiasm can take care of motivated oppo sition. Without it, political intrigue can frustrate it

The Idea That Was Gandhi

GANDHI is intact without his non-violence, but not without his non-cooperation, that is, resistance to authority generally and to its abuse, in any case. He is intact without his ideas on industry but not without his opposition to oligarchies of every kind. The integrity of his idea will not collapse with the collapse of Indian nationalism, though he was largely its architect; but it will disappear without his attack on centralised authority.

Gandhi's tragedy, in his lifetime and after his martyrdom, was that, despite a whole lot of books written on him and his ideas, most people know only of his conclusions and not of the steps that led to those conclusions. This may be the failure of those who wrote about him. This may be Nehru's failure in the sense that, apart from sanctioning the scheme for the "Collected Works" which can be no more (and no less, of course) than a source library, he did not encourage a systematised study of the ideas of a fundamental political and social philosopher. Nehru himself, unwittingly perhaps, reduced Gandhi to a mythical hero "The light that shone was no ordinary light". "He was tough as steel, yet gentle in the extreme". Or, differing radically from Gandhi on most matters, Nehru did not think much of encouraging Gandhian studies.

Then there were a whole lot of Gandhians who were content to project Gandhi as an apostle, sometimes of truth, sometimes of non-violence, but seldom of the people, of the down-trodden, of the "*daridranarayan*", of "the dumb millions".

The discussion of Gandhi in this country, has never been serious, not even a tenth as serious as the discussion of Marx, Lenin or Mao. Gandhi is generally regarded as the unique leader of a unique struggle against colonial rule, as a believer in truth and non-violence, as a passionate antagonist of the machine, as a person of great inner power—all of which only detracts from the intellectual force that Gandhi was and an almost wholly now political philosophy that he created equal to that of Marx or Mao.

The apotheosis of Gandhi by the self-proclaimed Gandhians has also blurred a discussion of his ideas as much as the wholly untenable thesis that while Gandhi represented some kind of primitive romance, Nehru represented "modernism" and "progress". The truth, perhaps, is the reverse, if only one went deeper into the utterances of the two. The leftists made the debate more difficult by the vehemence of their jargon.

DISSERVICE HAS been done to Gandhi by many widely-differing men and institutions but not as much, perhaps, as by Gandhi himself. He often used a language which appeared to be be evange lical like the Sermon on the Mount, forgetting tha he lived in an age when men were charmed by the me thodological language of western liberalism. Nehru in India, was the high priest of this liberalism and th appeal of his words was far greater than of Gandhi' ideas. Precisely for the reason that he was again industrialism (and organisation), Gandhi was again method. Logically, therefore, there is no Gandhis as there is Marxism. He himelf said, "If Gandism i another name for sectarianism, it deserves to b destroyed." "My aim is not to be consistent wit my previous statements on a given question but to b consistent with truth, as it may present itself to m at a given moment. The result has been that I hav grown from truth to truth".

And yet, while there is no Gandhism, there is th Gandhi idea or the idea of ideas

If the entire body of these ideas is taken togethe there is one continuous theme which will emerg namely, that all systems that consolidate power an authority are bad This led him to his fundament conviction that without the building of the people will to resist, all systems of power will degenerate fir into autarchy and then into despotism, constitution or otherwise. That will to resist, in the Gandhi schem transcends every ordinary discipline and obeys on the discipline not to be cowed down by the fact or threa of reprisal Hence, "real *swaraj* will come not by th acquisition of authority by a few, but by the acquisitio of the capacity by all to resist authority when it is abused In the absence of mass action, tyranny is bound to inhe in any organisation—that of establishment or of revo Present benevolence is irrelevant and in no case s fficient guarantee against creeping insidious tyrann Thus do rebels become tyrants when the rebellion itse is the work of a few. The people who are incidental t rebellion soon become irrelevant to governance. Th benevolence of democratic centralism is not the equ valent of people's power.

IT IS THIS that makes Gandhi irksome as muc to those in the establishment as to those rebellion. For he denies both the right to ru The vanguard theory of the Marxists was antithet to the non-cooperation idea because it does not bri the people into the scope of action. "Ends and mean was not an ethical principle but a basic political ten which lays down that what is achieved by a few will kept by the few, even if these few are more broad-base more generous, less avaricious and more well-meani than those whom they replace as the ruling class.

How do you contend with this man? Cut him

ize; make him "gentle", "non-violent", "truthful", pure", "very Indian" and generally irrelevant, more to e remembered than to be followed, more to be used as convenient distraction than to be understood and omprehended.

The problem with this toothless friar who wandered ı his loin cloth is that he cannot easily be ignored ough it is almost 30 years since he left us in peace. e is more than what the rebel and the ruler can accept. herefore, treat him as a Mahatma or a political crank. therwise he will create trouble for everyone who is ome one.

That is where the conspiracy begins. He is quoted r his peripheral values, not for the core of his mission. is village idea and his non-violence are nothing if they e not the banner of mass action against organised ranny. And if mass action and organised tyranny n both be taken care of in any other way, Gandhi at ast would have had no objection, not the Gandhians ie non-cooperation idea, which revolutionised Indian litics and which is his outstanding legacy, is the word-arm", if one might use the term in the Gandhian ntext, of mass politics without which there can be democracy. His *Satyagraha* is the safeguard against ery trend of authoritarianism. And his village ea is the guarantee against the despotism of power

To confuse them with ethics or economics is to miss e central idea of Gandhi. Urban parasitism has a sted interest in this distortion. Inherent in his scheme things is the primacy of people's sovereignty against te privilege. He was not content with romanticising e equality idea as the urban liberals tended to do. He ve socialism and democracy a basic and revolutionary rpose different from the mere mercenary objective material well-being. Such well-being was inherent his idea but the idea itself was more imporant— mely that the people should be the arbiters of their desty.

THUS THE INTEGRITY of the Gandhi idea will stand without nationalism, non-violence and even village economy, but it cannot stand without the sic ingredient of mass action and people's sovereignty. is this which is always under attack from concepts of agmatism, stability, tactics, strategy, efficiency, ornised justice and organised planning. These are the ncepts of centralism—legislative or administrative— d Gandhi's entire life was a battle against centralism. he was aware of its virtue, he was aware of its greater e. Not in authority alone but in revolt also, centram does lead to whimsicality, arbitrariness and opporaism with the result that the revolt collapses when organised part of it refuses to act for reasons of its m. The meaning of both non-cooperation and its ore active foil, civil disobedience—a weapon eminently mocratic and universally valid and applicable— that organisation is less important than the people.

NON-VIOLENCE WOULD belong to the inessential Gandhi, if some other method could be evolved whereby the people will always be in the centre of acn. Gandhi's non-violence is a corollary to his convict- ı that every other form of resistance would depend on ganisation. He had no objection to violence except it it is often senseless and vengeful and always ds to a new despotism. "For me," he told Nehru, is material to obtain the real article and the rest will l into the picture afterwards. If I let go the real ing, all else goes". He chose non-violence because will help obtain the real article. Terrorism, as he id, is the stock in trade of the tyrant, but once "the bject ceases to fear the despotic force" the tyrant's "power is gone". Non-violence helps every individual "to defy the might of an unjust empire" and "pit his whole soul against the will of the tyrant".

Gandhi is often regarded as some kind of sadist when he says, "Non violence, in its dynamic condition, means conscious suffering". The truth, however, would seem to be that the individual is no match to organised tyranny in the use of competitive violence. Either one waits for an organisation to develop and endure the tyranny while waiting for this messiah, or one makes it known that, even without arms, one will defy the despot's will. At that moment the despot collapses. In his evidence before the Hunter Committee, while arguing for the greater validity of *satyagraha* under home rule, Gandhi said he expected each *satyagrahi* to be followed by another. Though, in theory, it is true that an individual can defy an empire, what it implies is that when this spirit of resistance becomes general, there is little chance of a despotic force emerging. Thus, "A civil resister is dangerous for an autocratic state . . complete civil disobedience is a state of peaceful rebellion—a refusal to obey every single state-made law. It is certainly more dangerous than an armed rebellion. For, it can never be put down, if civil resisters are prepared to face extreme hardships".

Here Gandhi was trying to say that while force could be overcome by superior force, non-violence could be overcome only by superior non-violence, that is, only when the state ceases to do injury to the citizens. Once the state knows that there is this preparedness to defy, even at some cost to life and person, the state becomes powerless.

MAO'S PROBLEM, in a measure, was that the new bureaucracy had become powerful Hence the cultural revolution. Gandhiji's tragedy, as stated before, was that, not believing in the methodology of western logic, he stated his conclusions and the preceding steps in terse, aphoristic and almost idealistic terms with the result that his statements appeared to be in the tradition of "messiahs". So were Mao's statements in the eyes of I F. Stone who compared Mao's idea incentive as against material incentive to the homilies of the early Christian era.

When Gandhi spoke of violence and untruth in relation to urban civilisation, he was referring simply to the basis of that civilisation. Here again his tragedy was a refusal to yield to a form of presentation. When he said "cities", he meant the basis of the state structure, raised on city logic, the parasitism and oligarchy; that is, the untruth and violence it represents. It was his unassailable conviction that a state raised on such a logic may be anything—progressive if you like, modern may be or even benevolent—but it is neither freedom nor democracy and Gandhi believed unreservedly in both.

He said "Anyone who wants to do good should not hold power". He differed from Marx in the sense that whereas Marx thought that the first step to human emancipation was capture of power, Gandhi wanted to get there by first destroying power, or at any rate, by building people's strength to fight it in all its forms. It is in this context that while industrialism was basic to Marx, its destruction was basic to Gandhi.

One can accept or reject this; but one must at least understand the idea.

Gandhi did not completely reject Bolshevism, in whose principle of non-possession, he saw the application of the ethical ideal. He called Lenin the master spirit and hoped that, despite the violence, "the purest sacrifice behind Lenin's ideal" and "the noble example of re-

nunciation" would "quicken and purify the ideal" as time passes.

Gandhi was hesitant in this hope because he also said that since Bolshevism did not preclude the use of force but freely sanctioned it, the Bolshevik regime "in its present form cannot last long".

It is a debatable point whether the people have come into their own in Lenin's land or whether much of Lenin remains. Have "economism" and "development" helped in the quickening and purifying of the ideal or has the pursuit of material objective led to the diminishing of the revolutionary fervour?

It is difficult to assert. But there can be little dispute that the people, in whose name Lenin overthrew a chafing yoke sixty years ago, have now become incidental to governance.

A VIEW COULD be that in the world in which we live, the Gandhi idea will not work But it is at least necessary to know what that idea is, namely, that non-violence was conceived as the most practical form of mass action. Gandhi realised, however, that the weaker classes in the caste-ridden Indian society cannot, on their own, succeed unless they were joined by others Thus at Champaran, "by allying myself with the weak party, by teaching him direct, firm but harmless action, I made him feel strong and capable of defying the physical might". Along with his non-cooperation idea came the thesis of "change of heart". In fact, during his time, he was able to enrol a good number of caste Hindus to take up the Harijan cause. Much mischief has been done in emphaising his trusteeship theory as the core of his economic philosophy whereas it properly belongs to his political philosophy of change of heart In economic matters he was clear. He would not leave the economy in the hands of "trustees", and his writings abound in his definite belief that where any kind of large scale production is necessary, it should be in the sphere of social ownership and control. If he rejected organisation as tyrannical, he rejected individual benevolence as irrelevant

It is remarkable how, amidst his theorising and leading the anti colonial struggle, he started a number of organisations like the Talimi Sangh, the Harijan Sevak Sangh and the all India Spinners' Association They were run by constructive workers with commendable efficiency. He believed in this kind of cooperative management and would have shuddered to think that social and economic movements, any more than political movements, could be left to trustees

HIS OPPOSITION to centralism in economics as in politics was based on his conviction that this would degenerate into expert exercise in which the people would have little say—a perfect setting for the ascendancy of elite oligarchy. He wanted to create an awareness of this incipient despotism, without which the people would lose the battle every time and there was always the chance and almost always the fact of a client people being outsmarted by the elite. Neither efficiency nor even honesty could be sufficient excuse for the denial of the right of the people to govern or misgovern. That was the meaning of his saying that he would prefer anarchy to unwanted government. Without mass participation, even a well-meant socialised sector would become a bureaucratic sector with all its jargons of returns, economic operation, growth rate and the rest. Not that Gandhi was against efficiency; but he was for subordinating it to people's control. Planning as an *efficiency* concept should come to terms with planning as a people's concept. If it is not something more than "projections" and "perspectives," the efficiency logic is bound to result in compromises with urban pressure groups and in pampering strategically-placed sections constituting an unproductive parasitic minority.

Gandhi had no particular quarrel with the urban idea. His views on self-contained village republics based on cottage industry and simplified basic education were part of an integrated philosophy rooted in the sovereignty of the people. One may not agree with the details of the philosophy, but the philosophy itself compels attention.

Gandhi did not reject the material circumstance altogether; but he wanted the human circumstance to assert itself. He was anti-machine only because the machine brought with it a social structure in which, with all the benevolence of the ruling class, man either was irrelevant or had to fit into one system of the other.

GANDHI RECOGNISED that representative democracy was inevitable in a technological society. The logic was relentless If poverty could not be wiped out except by industry, industry could not be built except by large governments, and large governments could not be sustained except by representative democracy. This in turn meant delegation of authority and authority implied submission. Authority, having established itself to be necessary for progress, would assert its role for order and, what was worse, for national greatness. Therefore, the small approach would have to give place to the big approach.

If the reverse logic was to be followed whereby people would transcend institutions, one had to start with where the vice began Police power as a transcending state obligation and benevolence as the functional role of the elite led not only to the rule of law which was made inseparable from the rule of the *danda* but also to urban parasitism, modernised consumption, distribution of patronage among this parasitic urban middle and upper middle class and above all politics based on power. All of this flowed in irresistible logic from the system of government by representation and the rationale behind this system was the logic of industrialism. Hence, "my concern is to destroy industrialism at all costs", because Gandhi did not want people's sovereignty to be reduced to elite paradise.

GANDHI'S OUTSTANDING contribution to Indian nationalism and political unity was that he transformed it from an imperial administrative concept to one of popular aspiration. 1919 is the year of great divide, the year when the people of this country, from end to end, felt, acted and responded as a single political entity. Indian integration was essentially based on the Gandhi movement This is true as much of territorial integration as of its political content. Almost overnight, as it were, Gandhi made Indian nationalism comprehend the whole of Indian geography. Before him neither pervasive religion nor ubiquitous authority provided the avalanche of national fervour which, under him, swept all administrative, regional, and linguistic barriers. At freedom, the Indian mind had been conditioned by more than a quarter century of Gandhi to regard the land bounded by the Himalayas and the seas as something more than a physical entity held together by the Hindu religion. Intellectually and emotionally, this political nationalism had been so strongly woven into the Indian consciousness that its significance was somewhat lost in the character of naturalness imparted to it by the momentum of the Gandhi movement. The Republic, one and indivisible, was not the climax of conquests and acquisitions. It was not an accident of power and adjustment. It was the consummation of a political process under Gandhi.

TRAGICALLY, HOWEVER, the Constitution which gave expression to this nationalism which Gandhi, more than most, fashioned, failed to reflect his basic philosophy of how that nationalism might flourish in a continuing circumstance of popular fervour and participation. The extent to which Indian nationalism is sought to be reduced to a mere administrative exercise is reflected in the kind of elite argument that goes on about centre-state relations. These arguments of strength, stability, efficiency and even constitutionality are an attempt to go back to the imperial concept of unity and rob it of the essential ethos of popular aspiration. This is not a problem of framework or formulae. A formula not based on a basic philosophy of Indian nationalism may be clever but will not work. If Indian unity is not a matter of law and security it is also not an instrument of economic development. Neither prosperity nor strength makes a nation. Its sanctity must derive from a deeper involvement of the mass of the people in its many expressions The sanction is not the constitution but the people. Essentially the problem of centre-state relations is how far authority will be surrendered to the people. This process can never end

Gandhi's village scheme may not be a complete constitutional structure. It is an idea It may have several weaknesses. If centralism makes for oligarchy, a narrow local authority may not even have the saving grace of benevolence. A local tyranny can be even more fearsome than a centralised autarchy. The problem is one of approximation, refinement, remedy If the village idea cannot be turned down on grounds of practicability, it can not be rejected on grounds of rural malevolence either Some kind of dualism of sovereignty and control can be tried. In any event, this is a question of political philosophy, not of administrative legerdemain.

THE GANDHI idea may be full of pitfalls. It is often said that without Gandhi, his scheme just does not work. All this may be true. But there must be comprehension of the idea before its usefulness and limits are considered. In many areas, as in employment, Gandhi provides a yardstick of judgement. Within his scheme, arguments like economics of scale (a greatly disputed premise) acquire a new place and purpose.

"Thinking big"—that is what is perhaps needed provided this is not a totem of modernity. But thinking in smaller ways is also not bad. Gandhi, for all his village idea, was not such a small man.

It is a pleasant but futile exercise to speculate on what Gandhi would have done if he had lived longer. It is tempting to say that it was good that he died when he did; otherwise he might have lived to see the India of his dreams crumbling around him On the other hand, he wanted to live up to 125 years. He might not have come immediately into conflict with Nehru. But he had a peculiar way of pressing with his idea. It is almost certain that he would have organised the Indian equivalent of the cultural revolution. Mao lived for 27 years after assumption of political power. Gandhi died within six months of the British departure Had he lived the world might have witnessed a unique encounter between his and Mao's ideas All this may be idle speculation, but the fact remains that Gandhi did not have the chance which Mao had of trying out his ideas Much of his life was taken up with anti-colonial and anti-racist struggles He did not live to test the validity of his more basic mission

That perhaps was the tragedy of January 30, 1948. R.K.

Gandhi the Writer

—Kaushik

AN ASPECT of Gandhi has been understressed in the many books that have been written about him. Even as late as 1945, Nehru, in writing to him, adopts a superior position, as if to say that Gandhi was over-simplifying things : which might not have been bad, were it not for an undertone of sympathy or rather pity for this well-meaning, but simple individual unversed in the logic of the age.

Urban India accepted Nehru more than it accepted Gandhi, not merely because Nehru, with his frequent reference to technology and the rest, seemed to be looking ahead, but more relevantly because his biographers had never omitted to mention his wide reading and living contact with leaders of contemporary thought beginning with his participation in the European get-togethers in the anti-imperialist cause; whereas most biographies of Gandhi, beginning invariably with his three promises to mother Putlibai, set him against a less catholic and more austere background

Gandhi might have been more readily accepted by the urban "intelligentsia", if his unique inner development had been shown to be what, indeed, it was—the product of a fascinating encounter with the best minds of the age, both through books and through intimate personal meetings. Gandhi, no doubt, was largely a "first principles" man. At first he exasperates you with his "obstinacy", till you get to know him better. And when you do, you begin to marvel at his persevering patience. In his time, which was nearly up to the time the bullet struck him, he had done about as much reading as most others in his position had or would have done; and had met more people than most men in his position had perhaps done.

But there was a difference. Where others might have been swept off their feet, he seldom gave in until he was fully converted. Two excellent collections of essays on the Soviet Union are available, one written by Nehru after his 1927 visit and the other written by Tagore who had gone to that country a little later Nehru was no less thrilled than the poet, and both were romanticised by what was, without question, an enchanting human accomplishment. It is, however, very doubtful if Gandhi would have written about the Soviet Union in the same romantic vein, if he had the occasion.

Gandhi subjected every experience of his to the severest test of his reasoning, and it so happended that he accepted not very much and even this he assimilated in his dialectic, with the result that, for all his understanding and receptivity, he appeared to be puritanically austere.

BHABANI BHATTACHARYA'S "Gandhi, the Writer" (centenary publication of the National Book Trust) mentions a curious aspect of Gandhi's stay in London. The closing years of the nineteenth century had witnessed a widespread ferment of ideas in Europe London was seething with it when Gandhi spent his time mostly in the vegetarian movement. There were the Fabians, the Webbs and Shaw, the anarchism of Kropotkin, Marxists all over the place, the revolution wrought by Darwin, Havelock Ellis and Esward Carpenter, the suffragists and the rest. Yet Gandhi, living at the epicentre of these movements, does not seem to have felt

the heat of the new quest.

It is, of course, possible that with his consuming concern over religion, "which was three parts ethics", he stood apart from the "big upheavals". What seems more probable is that Gandhi merely refused to be overwhelmed by the new ideas. He was prepared to take note of them, consider them dispassionately and correlate them with his "first principles". One thing was clear even at that early stage. He was not going to be victimised by industrialism and all the egalitarian and humanistic concepts that flowed from industrialism. For him there was the basic dilemma of a contradiction in terms; ethics and humanism had little to do with the growing technology. All the new ferment in Europe did not seem to go far in resolving this basic contradiction. Years later Gandhi was to take up this question with Bertrand Russell, Richard Gregg and even with Henry Ford, if I remember right. All that Russell could say was that, while he would not dispute Gandhi's premise, industrialism was like a force of nature which even India would not be able to resist. Gandhi was constantly troubled by this seeming compulsion.

It would, therefore, be an oversimplification to say that he stood aloof from the current social movements. However, Bhabani Bhattacharya appears to be entirely right in another matter. Gandhi did exaggerate the influence on him of Ruskin, Thoreau and Tolstoy. "In each case", as Joan Bondurant is quoted by Bhattacharya, "the influence was that of corroboration of an already ethical precept, a crystallisation of basic moral pre-dispositions". In Louis Fisher's words, Gandhi "co-authored the impression the book played on him".

THIS, THOUGH, would only seem to confirm what has been said earlier—that while he was prepared to read almost everything and listen to anyone, he would only accept what appeared to him to be fundamentally true. He was not prepared readily to compromise—a quality he shared with Lenin.

All of which leads Bhattacharya to recall what has been said of Gandhi. 'He never *read* books, he *studied* them". Similarly one might say that he never met people; he tried to understand them and be understood by them; and as with men, so with events.

If books alone could have moulded a man, they should have moulded Gandhi. Starting with Bentham's *Theory of Utility* and Henry Salt's "*Plea for Vegetarianism*", he went through Howard Williams and his genre, before arriving at Sir Edwin Arnold. (Incidentally, this was his introduction to Gita). Then followed Blavatsky, Christian literature and appro priately Carlyle. Early during his sojourn in South Africa, he read eighty books on Christianity besides a host of books on other religions. Edward Maitland impressed him greatly at this stage, and, truly, there was some correspondence between the two. Simultaneously he was reading a lot of books in Gujarati, mostly with a religious bias. Tolstoy's "*Kingdom of God is within You*" was to come afterwards and Ruskin's "*Unto this Last*", even later. He took Socrates in his stride of prison reading. He read an account of the Sufis and during this period was impressed by Saadi's "*Gulistan*". During the "Phoenix days", he started on Huxley, Bacon and Stevenson, besides Emerson and Mazzini, and went back to Carlyle for his *French Revolution*. Sanskritic literature had been almost always wth him.

This was the foundation of a more varied and intensive reading to come. Thus in two years in Yeravada he "studied" a hundred and fifty books, widely differing from one another—Scott, Ben Jonson, Goethe, H.G. Wells, Bernard Shaw, Kipling. To give only a few of the titles : Gibbon's *Decline and Fall of the Roman Empire*, Heckel's *Evolution of Man*, Bacon's *Wisdom of the Ancients* Geddes' *Evolution of Cities*, Laski's *European Morals*, Rosebarry's *Life of Pitt*, Tagore's *Sadhana*, Shah's *Man and Superman*, Goethe's *Faust* and Kipling's *Barrackroom Ballads*.

IN THE meantime, Gandhi was becoming a world phenomenon and was perforce to meet a bewildering number of people, each a leader in his right—Rolland, Chaplin, Shaw, Laksi, Hewlett Johnson, Tagore, loyd George to mention a few. Whether it was Sewagram in India's deep interior or Kingsley Hall, where he characteristically stayed during his London visit for the Round Table Conference, there was an unending stream of men coming to meet him. His discussions were seldom other than intense.

It is this aspect of Gandhi,—his living contact with men and books—that provides the backdrop for Bhabani Bhattacharya's wholly worthwhile addition to Gandhi literature. Bhattacharya, I suspect is not a Gandhian, not wholly having rejected materialistic ideas and has, therefore, the advantage of objectivity. His appreciation of Gandhi does not, therefore, suffer from fanaticism. He is able to see Gandhi wholly and in stages, and he does not need to apologise for marvelling at the great evolution.

Bhattacharya's great merit is in not reducing his book to a critique. He lets the personality of Gandhi take shape and thus is able to present the writer as part of the man, particularly because in this case there was little room for "make-believe" artistry

Reading, meeting and struggling, Gandhi was evolving himself and "nothing could be more creative than the piece of sculptural work he carved out himself". Yet this "passage of a common man to one of the greatest figures in world history" had taken place without any "conscious effort on Gandhi's part to find a place for himself among the great ones of the world". The words flowing from such a man naturally stand as a record of an "amazing inner development".

And it seems that almost from his first visit to London, Gandhi had never ceased writing. He was much less than twenty when he scribbled his London Diary. He soon was writing to *The Vegetarian* and even at that early age had gone a long way in mastering a simple style of saying things forcefully. For instance, "There are millions in India who live on one pice, that is, one third of a penny a day.... these poor people have one meal per day and that consists of stale bread and salt, a heavily taxed article". From the start, he wrote only purposefully and was concerned the least about embellishing his words. "Every day of his sojourn in London was dedicated to some stern, implacable purpose".

SOUTH AFRICA quickened his mission, and one also sees a great increase in his writing. First two pamphlets, next a book (during a brief visit to India in 1896) and then the avalanche through *Indian Opinion*. In the first two years of the journal, Gandhi had written five hundred articles and notes.

Young India, Navajivan and Harijan,—his immense correspondence and the books including Hind Swaraj written in 1908 and the Autobiography. The vigour of his writing and its literary power steadily grew with each stage of his inner development. And all through, there is a strange communative power.

"I write as the spirit moves me at the time of writing— Often my vanity dictates a smart expression.... it is a terrible ordeal but a fine exercise to remove the weeds". If John Middleton Murray regarded *Hind Swaraj*" as the greatest book written in modern times, he had been moved as much by the authenticity of the idea as by the genuineness of the language.

As Bhattacharya points out, it is astounding that the flow of Gandhi's writing never slackened during the long years. He wrote in Gujarati also, though naturally he wrote more in English, in which language his wordage must be a few million. "I do not wish to forget that language (English)", Gandhi wrote in 1948 a few days before the assassination, "nor do I wish all Indians to give up or forget it....English is the language of the world....Imperialist rule....will go....But the superior role of the English language cannot go".

Edward Thomson wrote, "Perhaps his (Gandhi's) unsurpassed command of English idiom comes from his perfect control over his mind....I have never met an Indian who had mastered them (the prepositions) as Gandhi has". He had "neither the time nor the inclination to cultivate the so-called art of writing", as another critic notes. "No straining after emphasis, no colour, no irradiating brilliance. Yet they are *Gandhi's words* and their very bareness constitutes their strength". T.H. Holmes said that since he wrote with disciplined simplicity, the result was the one most important quality of literary art—namely, clarity. And Erikson speaks of the "passion, piognancy and the humour in his use of English".

GANDHI'S IMPACT on the Indian languages had been great, both "through his writings and through his movements". His contribution to modern Gujarati literature has been signal. His *Atmakatha*, according to K.M. Munshi, has its place among the best works in Gujarati prose. As Bhattacharya himself remarks, Gandhi was a writer's writer, inspiring creativity on a big scale.

"Gandhi, the writer", as he emerges from Bhattacharya's distinctively written book is an integral part of the man himself ; which is not a truism, for a lot of writing is a camouflage of the man behind the mask.

The book makes easy reading. Some less known facts serve to lighten the narration which is never auster. Charlie Chaplin shocked the guests at Winston Churchill's country house where he was staying with his bald statement that he was meeting Gandhi. Lloyd George recalled to Louis Fischer the black cat which sat on Gandhi's lap during the latter's visit to his Surrey residence and which appeared again only when Madelene Slade visited the liberal leader. Bernard Shaw was uncharacteristically modest when he described himself as mere Mahatma minor. Romain Rolland speaks to Gandhi warmly of Lenin "who, like you, never compromised with truth".

THE ACCOUNTS of Gandhi's various meetings with eminent men in London are lively, and the quotation from Edward Thompson's accounts of a meeting when Gandhi was cross examined for three hours by the Master of Balliol, Gilbert Murray, Sir Michael Sadler and P.C. Lyon is interesting. "Not since Socrates", says Thompson, "had the world seen his equal for absolute self-control and composure....He has never been taken in by his own legend....He arrogates no dignity to himself. He will pull your leg and enjoy having his pulled in return".

Gandhi was, after all, not so naive or credulous ! In any event not a romantic, which, ironically, Nehru, with all his love for the modern, very much was.

Gandhi-Nehru Letters

Reproduced below are extracts from three letters exchanged between Mahatma Gandhi and Jawaharlal Nehru in October and November 1945.

Writing on October 5, 1945 Gandhi said :

"The first thing I want to write about is the difference of outlook between us. If the difference is fundamental then I feel the public should also be made aware of it. It would be detrimental to our work for *swaraj* to keep them in the dark. I have said that I still stand by the system of government envisaged in *Hind Swaraj*. These are not mere words All the experience gained by me since 1908 when I wrote the booklet has confirmed the truth of my belief. Therefore, if I am left alone in it I shall not mind, for I can only bear witness to the truth as I see it. I have not *Hind Swaraj* before me as I write. It is really better for me to draw the picture anew in my own words. And whether it is the same as I drew in *Hind Swaraj* or not is immaterial for both you and me. It is not necessary to prove the rightness of what I said then. It is essential only to know what I feel today. I am convinced that if India is to attain true freedom and through India the world also, then sooner or later, the fact must be recognised that people will have to live in villages, not in towns, in huts, not in palaces. Crores of people will never be able to live at peace with each other in towns and palaces. They will then have no recourse but to resort to both violence and untruth. I hold that without truth and non-violence there can be nothing but destruction for humanity. We can realise truth and non-violence only in the simplicity of village life and this simplicity can best be found in the *charkha* and all that the *charkha* connotes. I must not fear if the world today is going the wrong way. It may be that India too will go that way and like the poverbial moth burn itself eventually in the flame round which it dances more and more furiously. But it is my bounden duty up to my last breath to try to protect India and, through India, the entire world from such a doom. The essence of what I have said is that man should rest content with what are his real needs and become self-sufficient. If he does not have this control he cannot save himself. After all, the world is made up of individuals just as it is the drops that constitute the ocean. I have said nothing new. This is a well-known truth.

"But I do not think I have stated this in *Hind Swaraj*. While I admire modern scinece, I find that it is the old looked at in the true light of modern science which should be reclothed and refashioned aright. You must not imagine that I am envisaging our village life as it is today. The village of my dreams is still in my mind. After all, every man lives in the world of his dreams. My ideal village will contain intelligent human beings. They will not live in dirt and darkness as animals. Men and women will be free and able to hold their own against any one in the world. There will be neither plague, nor cholera nor small-pox; no one will be idle, no one will wallow in luxury. Everyone will have to contribute his quota of manual labour. I do not want to draw a large-scale picture in detail. It is possible to envisage railways, post and telegraph offices, etc. For me it is

material to obtain the real article and the rest will fit into the picture afterwards. If I let go the real thing, all else goes.

"On the last day of the Working Committee it was decided that this matter should be fully discussed and the position clarified after a two-or three-day session. I should like this. But whether the Working Committee sits or not I want our position vis-a-vis each other to be clearly understood by us for two reasons. Firstly, the bond that unites us is not only political work. It is immeasurably deeper and quite unbreakable. Therefore it is that I earnestly desire that in the political field also we should understand each other clearly. Secondly, neither of us thinks himself useless. We both live for the cause of India's freedom and we would both gladly die for it. We are not in need of the world's praise. Whether we get praise or blame is immaterial to us. There is no room for praise in service. I want to live to 125 for the service of India but I must admit that I am now an old man. You are much younger in comparison and I have, therefore, named you as my heir. I must, however, understand my heir and my heir should understand me. Then alone shall I be content."

Nehru's reply was sent four days later. He said :

"Briefly put, my view is that the question before is not one of truth versus untruth or non-violence versus violence. One assumes as one must that true co-operation and peaceful methods must be aimed at and a society which encourages these must be our objective. The whole question is how to achieve this society and what its content should be. I do not understand why a village should necessarily embody truth and non-violence. A village, normally speaking, is backward intellectually and culturally and no progress can be made from a backward environment. Narrow-minded people are much more likely to be untruthful and violent.

"Then again we have to put down certain objectives like sufficiency of food, clothing, housing, education, sanitation, etc. which should be the minimum requirements for the country and for everyone. It is with these objectives in view that we must find out specifically how to attain them speedily. Again it seems to me inevitable that modern means of transport as well as many other modern developments must continue and be developed. There is no way out of it except to have them. If that is so, inevitably a measure of heavy industry exists. How far that will fit in with a purely village society? Personally I hope that heavy or light industries should all be decentralised as far as possible and this is feasible now because of the development of electric power. If two types of economy exist in the country there should be either conflict between the two or one will overwhelm the other.

"The question of independence and protection from foreign aggression, both political and economic, has also to be considered in this context. I do not think it is possible for India to be really independent unless she is a technically advanced country. I am not thinking for the moment in terms of just armies but rather of scientific growth. In the present context of the world we cannot even advance culturally without a strong background of scientific research in every department. There is today in the world a tremendous acquisitive tendency both in individuals and groups and nations, which leads to conflicts and wars. Our entire society is based on this more or less. That basis must go and be transformed into one of co-operation, not of isolation which is impossible. If this is admitted and is found feasible then attempts should be made to realise it not in terms of an economy, which is cut off from the rest of the world but rather one which cooperates. From the economic or political point of view, an isolated India may well be a kind of vacuum which increases the acquisitive tendencies of others and thus creates conflicts.

"There is no question of palaces for millions of people. But there seems to be no reason why millions should not have comfortable up to date homes where they can lead a cultured existence. Many of the present overgrown cities have developed evils which are deplorable. Probably we have to discourage this overgrowth and at the same time encourage the village to approximate more to the culture of the town.

"It is many years ago since I read *Hind Swaraj* and I have only a vague picture in my mind. But even when I read it 20 or more years ago it seemed to me completely unreal. In your writings and speeches since then I have found much that seemed to me an advance on that old position and an appreciation of modern trends. I was, therefore, surprised when you told us that the old picture still remains intact in your mind. As you know, the Congress has never considered that picture, much less adopted it. You yourself have never asked it to adopt it except for certain relatively minor aspects of it. How far it is desirable for the Congress to consider these fundamental questions, involving varying philosophies of life, it is for you to judge. I should imagine that a body like the Congress should not lose itself in arguments over such matters which can only produce great confusion in people's minds resulting in inability to act in the present. This may also result in creating barriers between the Congress and others in the country. Ultimately, of course, this and other questions will have to be decided by representatives of free India. I have a feeling that most of these questions are thought of and discussed in terms of long ago, ignoring the vast changes that have taken place all over the world during the last generation or more. It is 38 years since *Hind Swaraj* was written. The world has completely changed since then, possibly in a wrong direction. In any event any consideration of these questions must keep present facts, forces and the human material we have today in view; otherwise it will be divorced from reality. You are right in saying that the world, or a large part of it, appears to be bent on committing suicide. That may be an inevitable development of an evil seed in civilisation that has grown. I think it is so. How to get rid of this evil, and yet how to keep the good in the present as in the past is our problem. Obviously there is good too in the present.

"These are some random thoughts hurriedly written down and I fear they do injustice to the grave import of the questions raised. You will forgive me, I hope, for this jumbled presentation. Later I shall try to write more clearly on the subject."

Early in November 1945, Gandhi and Nehru met to discuss their views on the matters mentioned in the two letters. Writing about this meeting to Nehru on November 13, 1945, Gandhi said :

Our talk of yesterday's made me glad. I am sorry it could not be longer. I feel it cannot be finished in a single sitting, but will necessitate frequent meeting between us. I am so constituted that, if only I were physically fit to run about, I would myself overtake you, wherever you might be, and return after a couple of days, heart-to-heart talk with you. I have done so before. It is necessary that we understand each other well and that others also should clearly understand where we

stand. It would not matter if ultimately we might have to agree to differ so long as we remained one at heart as we are today. The impression that I have gathered from our yesterday's talk is that there is not much difference in our outlook. To test this I put down below the gist of what I have understood. Please correct me if there is any discrepancy.

(1) The real question, according to you, is how to bring about man's highest intellectual, economic, political and moral development. I agree entirely.

(2) In this there should be an equal right and opportunity for all.

(3) In other words, there should be equality between the town-dwellers and the villagers in the standard of food and drink, clothing and other living conditions. In order to achieve this equality today people should be able to produce for themselves the necessaries of life, that is clothing, foodstuffs, dwellings and lighting and water.

(4) Man is not born to live in isolation but is essentially a social animal independent and interdependent. No one can or should ride on another's back. If we try to work out the necessary conditions for such a life, we are forced to the conclusion that the unit of society should be a village, or call it a small and manageable group of people who would, in the ideal, be self-sufficient (in the matter of their vital requirements) as a unit and bound together in bonds of mutual cooperation and interdependence. ☐

WHAT HE STOOD FOR

What is industrialism but control of the majority by a small minority ? There is nothing attractive about it, nor is there anything inevitable in it. If the majority simply wills to say "no" to the blandishments of the minority, the latter is powerless for mischief.

I wish too, you would dismiss from your minds the views attributed to me about machinery In the first instance, I am no more trying to present for national acceptance all my views on machinery than I am presenting the whole of my belief in non-violence The spinning wheel is itself an exquisite piece of machinery My head daily bows in reverence to its unknown inventor. What I do resent is the wanton and wicked destruction of the one cottage industry of India that kept the wolf from the doors of thousands of homes scattered over a surface 1900 miles long and 1500 miles broad.

What I object to is the craze for machinery, not machinery as such. The craze is for what they call labour saving machinery. Men go on saving labour till thousands are without work and thrown on the open streets to die of starvation I want to save time and labour, not for a fraction of mankind, but for all. I want the concentration of wealth, not in the hands of a few, but in the hands of all. Today machinery helps a few to ride on the backs of millions. The impetus behind it all is not the philanthropy to save labour but greed. It is against this construction of things that I am fighting with all my might.

—Mahatma Gandhi

GANDHI THE BANIA

NEWSPAPERS reported recently that someone considered herself in the happy company of Gandhi (the Mahatma, of course) in the matter of a bad head for accounts. Fortunately the Mahatma escaped being banded together with this very esteemed person about "not collecting funds". Gandhi did collect funds—almost greedily, one might be tempted to say. His hand went out at every meeting to collect whatever came. Many were poor beyond words who gave him of their "riches". Once, on a tour of Orissa, speaking of the poverty of its people, he said "I have collected soiled pies from them tied tightly in their rags, and their hands were more paralysed than mine were at Kolhapur".

He did need funds—not for his political work, definitely not. He had his Harijan Sewak Sangh and a host of other organisations he started and ran efficiently with the help of voluntary workers or those who were paid so meagrely that they were not very different from honorary workers.

"I am a *bania*", he used to say often. The reference was as much to his collecting the money as to his keeping a very strict control over its spending.

Once he wrote rather vehemently of the financial affairs of a Congress committee in Andhra Pradesh. The accounts did not tally and Gandhi, true to form, did not spare the president of the committee for negligence but not worse. This poor chap, honest as the day, wished to protest his innocence before Gandhi and went to Wardha. Gandhi told him that the issue was not one of honesty but of the greatest care where public funds were involved.

The visitor from Andhra lingered. So far as the Mahatma was concerned, the interview was over. He had other things to do. Our man from Andhra suddenly blurted out, "I have no money to go back".

Gandhi, known for his mercilessness, asked, "Why did you then come? You could have explained in a letter. In any case I have no money of my own. You can walk back to Andhra".

The poor fellow went away.

Quietly a benign figure also left the room and returned after a while.

Gandhi looked at him, smiled and said, "I know what you have done, you gave him the return fare. That was partly why I could afford to be so ruthless. But I don't agree with you".

This gentle figure was none other than C.F. Andrews, known to millions as *Deenabandhu.*

The President And The Physician

Sahadeva

THE SPONTANEITY of good wishes for the President's quick recovery from his ailment is a measure of the esteem and affection in which he is held by the people of this land. After his firm resolve to move out of Rashtrapathi Bhawan, nobody will believe that he wished to have his treatment abroad. Very obviously the President and the Cabinet were guided by medical advice.

However, a controversy has now arisen from the statements of some well-known medical specialists. If the 'President's decision was based on incorrect advice and the prime minister's statement at a news conference on wrong data given to him, government, the medical association and other professional bodies may be expected to go into this and take appropriate action.

More pertinently, two questions remain to be settled to the people's satisfaction. One is to make it clear that government would no longer wake up only when a VIP has to be treated and start ordering the much-needed equipment. The second is to assure the people that two kinds of treatment would no longer be allowed to exist in this country--one for those who can afford because of their status or wealth and the other for those who cannot.

Very often one reads of the high cost of treatment at Delhi's medical institute. Sometimes a newspaper collects funds; sometimes a minister like Shri Advani donates. Afterwards, all is forgotten.

Overhauling the Health Ministry

The whole system of medical education, hospital administration and budgetary allocations for public health and treatment has to be revamped. Not only are the hospitals overcrowded but the doctors and nurses are overworked. The general wards are sometimes among the most insanitary places in a hospital. Neither the patient nor the doctor is satisfied.

If Shri Raj Narain means business, he must overhaul his ministry, do away with its stupid hierarchy, engage immediately in immediate consultations on a whole range of health problems and take quick decisions.

First a committee should look into the minimum of nurses and doctors—GPs and specialists—and the minimum of dispensaries and hospital beds needed; secondly there should be a study of how quickly dispersal of the medical facilities can be brought about; thirdly, a committee should go into hospital administration, delegation of financial and administrative powers to hospitals, location and design; fourthly, the entire requirements of equipment, medicines and maintenance should be worked out; it is scandalous that sometimes the patient or his relative is asked at the last moment to procure a medicine; fifthly, a good public relations system—not the slick cocktail P.R. men strutting about—to guide the public should be worked out; the people should know where and how they can go quicklly in an emergency or for specialised treatment; sixthly, all distinctions between men of status and means on the one hand and those of honest insignificance and honest poverty on the other should be abolished in government-run hospitals; this perhaps is not immediately possbible but a target date of expanding the facilities should be set when this can be done; seventhly, the budgetary requirements of public health, medical education, OPD and in-patient treatment and allied matters should be assessed; the allocation of funds for this purpose must receive high priority; eighthly the Indian Medical Association or a similar body and its literature should be made more functional, if necessary by law.

It is amazing that in a country where brilliant young men and women are groping for a worthwhile purpose, the doctors and nurses are overworked. The problem cannot and should not be one of money.

Degenerate Administrative System

The problem of health and treatment is only an index of the degenerate administrative system which sanctifies office comfort to the neglect of areas where the administration meets the people. Unless th prime minister attends to this aspe of the matter, he may find that a his good intentions will continue t be no more than good intention A thorough overhaul of the admini trative system, culture and styl has been the crying need of th country for decades. Yet this precisely the area which has bee neglected by successive government Today the administration is litt more than a hunting ground careerists. Administration, far fro being a help, is often a burden. is not a question of posts, wh should hold them or how much the should be paid. It is a question simplifying the structure, makir it sensitive, result-oriented and re ponsive to the people's needs, ab lishing the status symbols and hi rarchies, promoting a partnershi system and punishing the smart an slick operators. Delhi's life sty so much perverts public prioriti and this life style is, to an exten set by the administration. If Sh Desai is true to Mahatma Gandh the best homage he can do to h memory is to reverse this order things.

Need to Protect Public Servan

While on this subject, one migl as well suggest that controversi over the treatment of JP and Lohi or over the exoneration of a surgeo should not be joined in public b ministers and M.Ps. There a other ways of ascertaining the trutl We must remember that publi confidence in doctors can be greatl weakened by these controversie Besides, the poor doctor is em barrassed every time he meets patient. A quiet inquiry, a revie and a quiet decision will meet th ends of equity and justice in mo cases. Where the public have right to know, the final decision ca be announed after the leaders o all recognised parliamentary group had been taken into confidence.

One hopes that in matters o food for the starving and treatmen for the ailing, this country has see the last of political pettifogging.

Broadcasting Commission: Some Suggestions

Krishna Chandra

THE VERGHESE Commission will have to be careful not to tread the beaten track of predecessor bodies including the Chanda Committee.

Autonomy is a much abused concept; particularly in this country. Various statutory bodies have often overstepped their legitimate fields, taking shelter behind the elaborate procedure for their impeachment. Without an objective and simple system of accountability, autonomy could be a new tyranny.

The Commission should not be victimised overmuch by precedent. There is a great temptation in this country to cite the BBC example. The tasks as well as the power of broadcasting in India are vastly different from what they are in the U.K.

The first business of the Commission should be to devise a simple administrative pattern for broadcasting, eminently suited to a creative organisation. The hierarchies with their extra-functional roles can have little place in any field of modern administration and less so in broadcasting and T.V A clear distinction should be made between policy, recruitment, coordination, field and evaluation. There should be no overlapping jurisdictions. Thus, the Board should be no more than a policy making body with no powers of recruitment, regulation or executive direction. Recruitment should be done by an independent Commission, which should function subject to law so that it does not claim immunity for gross acts of patronage and worse. The discussions and policy decisions of the Board should be made public. There should be very little or no secrecy in the functioning of the Board.

No Hierarchy

Programme coordination and administration should be made functional and not hierarchical. The equivalent of the Director General will not be a super boss and will be no more than a coordinator giving effect to the decisions of a multidisciplinary apex coordination body consisting of engineers, newsmen and other kinds of programme personnel. The coordination body will function within the policy framework of the Board.

This is possible only if the separate hierarchy of broadcasting administrators is done away with The three important branches—engineering news and general programming—should have identical carreer policies and the senior-most personnel of these branches should form the committee, with the chairman rotating among them and having neither a special status nor special powers beyond carrying out the decisions of the Committee. Residual powers can vest in the chairman subject to post-facto ratification by the coordinating committee which can meet once a week

This can be the pattern at the headquarters as well at the stations. At the stations as well as some of the other field offices like the news division at the headquarters, the field functions should be autonomous, in the sense that once the policy is made known and the coordinating committee has issued the guidelines, the day to day functioning should not be subject to direction from a higher body

Ensuring Accountability

The evaluation body should be equally autonomous. This will oversee whether the policy decisions have been adhered to or deviated from, enquire into complaints of deviation, evaluate the impact of programmes and make periodical reports to the Board. The Board may also request the evaluation body to enquire into any particular matter.

There must be a separate and autonomous disciplinary body which may also discharge vigilance functions. The Board may refer to this body individual cases of deviation from policy so that the vigilance body may enquire into these and other complaints and recommend action which may then be decided upon by the coordinating body subject to the appellate jurisdiction of the Board.

This is without prejudice to the disciplinary powers of the executive and supervisory officers whos excercise may be subject to appeal t a separate administrative tribunal

These are matters of detail. Wha is paramount is that autonom should be inseparable from accoun tability. This is possible only i each body has a specific responsi bility instead of an omnibus bod having diverse responsibilities.

It would be useful if the Leade of the Opposition in the Lok Sabh is the Chariman of the Board an if the Board includes nominees o all the recognised parties in Pa liament besides eminent men o letters, fine arts, community educa tion, engineering and social science and some ex-officio invitees from th engineering, general programming an news functions of broadcasting. Th Board should meet at least once i two months, preferably once month. The Board may submi an annual report which will b discussed by Parliament. Such di cussion should not be subject t party whip.

With the autonomy of TV an broadcasting, the Ministry of I & B should be *completely* diveste of its responsibilities in these field The reports to Parliament will b routed through the parliamentar affairs department. The financia allocations will be directly discusse by the Board with the Plannin Commission and the Finance Mi nistry.

The vexed question of whethe TV and broadcasting should hav two separate organisations can b easily disposed of. The Board, th coordinating body, the recruitmer commission, the evaluation organ sation, the vigilance committee an the administrative tribunal shoul be common. All else will be fiel organisations, except that in ou present state of resources, it somewhat extravagant to have tw separate news divisions at the head quarters or at the stations.

Planning and development will b a separate functional field operatin directly under the Board, subject t financial parameters decided upo by the Board in consultation wit the Planning Commission and th Finance Ministry. Even here, constellational as different from hierarchical pattern should be re commended.

Breaking a National Monolith

All this is on the basis of a mo nolithic structure of broadcasting an TV. This need not be. There a strong case for a separate TV an

broadcasting board for each state, responsible to the state legislature under the broad framework of a central law. This will at once introduce competition without extra investment. This will have the further advantage of a rapid expansion of broadcasting and TV to reflect and satisfy the cultural, social, economic and political aspirations of the people. We should think of a thousand transmitting stations within ten years or so.

Organisational patterns will not be difficult to work out. Recruitment to the officer cadres can, however, be through a central commission as in the case of all-India services. There can be separate synchronised transmitters for the central body so that the stations need not be obliged to relay the programmes. The financing of the stations can be shared by the state and central governments through matching allocations so that the states may have an interest in expansion of broadcasting and TV.

The external services can be administered by a separate Board responsible to Parliament through the Ministry of External Affairs which can have policy and financial control of the Board subject to law.

BROAD SOCIAL PURPOSE

Preoccupation with political overtones of these media should not obscure a large area of entertainment, educational aids, community education and social development wherein these media have a great role to play. Great thought will have to be given to the provision of community radio and TV facilities in every village. The staff employed on maintenance can also be some kind of multipurpose health-assistants - cum-communicators. Special programming institutions will have to be set up continuously to devise software for community education free from political controversy or fashionable urban predispositions.

The Verghese commission should not lose sight of the broad social purpose of its tasks in its eagerness only to release the media from political stranglehold.

The whole question of advertising on TV and broadcasting should be reviewed, becuase of the possibility of the advertisers greatly influencing media policy. The expenditure on a basic infrastructure for social development should be a charge on the public exchequer.

The commission will also do well to consider whether there is not a morbid weakness for politics in radio and TV. Not more than four news bulletins in a language need be broadcast, nor more than an average of twenty minutes a day on newsreel, interviews, commentaries, parliament commentary and the rest. Some emphasis on sports may do all the good in the world. Books, science and the like should have a share of the spoken word programme. More than everything, the media should seek to educate the people in how they are governed or misgoverned

ORGANISATIONAL PATTERN

Briefly the organisational pattern and functions envisaged are :

The Board: Policy, study of evaluation reports; remittance of complaints arising from evaluation reports to the vigilance committee; appellate jurisdiction in respect of decisions of the coordinating body on the recommendations of the vigilance committee; report to Parliament; discussions with Planning Commission and Finance Ministry on the budget; and allocations of the budget to different wings. (If more than one board is decided upon each board will have these functions and the central board will have *no* authority over them)

The Recruitment Commission : Framing of recruitment rules; promotion policies; and recruitment of officers. The Commission's findings will be binding, but appeals against its findings will lie to the administrative tribunal on the basis of a parliamentary enactment. (The commission will recruit officers even if more than one Board is contemplated and will decide on transfers on tenure to the central organisation; otherwise, sub-ordinate staff will be ecruited by local commissions)

The Coordinating Body : This will coordinate the execution of the policy decisions of the Board and will also be the disciplinary authority in respect of the recommendations of the vigilance committee. This will be so for every such body attached to every autonomous board.

The Evaluation Organisation : This will, on its own, or on a public complaint, or on a complaint from the Board, enquire into complaints of deviations from policy, study the impact of the programmes and report to the Board as often as it considers necessary. Each autonomous board will have an evaluation organisation.

The Vigilance Committee : This will review the evaluation body's findings as remitted by the Board, enquire into complaints, from any source, of corruption and malpractice and make recommendations to the coordination committee concerned.

The Administrative Tribunal : This will hear appeals from the staff against any disciplinary or administrative action or malpractice by the Recruitment Commission and give its findings. Its decisions will be final. However, since there will be all-India services of officers, decision of state tribunals will be subject to appeal to the central administrative tribunal. These tribunals will be headed by persons qualified to be appointed judges of the High Court or Supreme Court.

DELEGATION OF POWERS TO THE FIELD

The field organisations should be clearly specified. Their executive actions can be subject to review only by the evaluation organisation or administrative tribunal in the first instance. Funds voted for them will be their exclusive responsibility to spend. Each field organisation will have a finance officer to ensure that the monies are spent for the purposes for which they have been allocated Budgeting should be highly efficient. The field organisations will be clearly accountable for deviating from policy and from the purposes of financial allocations and for mismanagement of personnel or equipment. Each station should be headed by the senior most officer in a station/region. All programme, news and engineering staff will receive administrative and professional training from time to time

TRAINING, STAFF INSPECTION, PROCUREMENT, R & D

An autonomous central staff training college with powers of drawing up the schedule of in-service administrative and programme training from time to time may be recommended. For each board, a staff inspection unit to ensure that the staffing is neither more nor less than necessary and to look after proper and equal career management of all the three financial branches should be set up. This unit will function continuously. Organisations to devise programmes and for planning and development will function under the Board or boards. An autonomous central hardware research organisation making recommendations to the board or boards may be set up. Procurement of equipment and parts should be by se-

parate autonomous bodies functioning under well-defined law.

If each state has a board, the central organisation will be very compact and manageable. There will be greater scope for functionalisation. To ensure that there are no opportunisms, a body on the lines of the press council can be set up under a parliamentary statute to hold the errant units to account in terms of the statute. A federal body of the chairmen of the boards can take care of problems of federal coordination.

Finally, the remuneration and the present staff. In recent years a fashionable theory has been allowed to gain ground that good broadcasting can be had only if good money is spent. This has led to patronage and parasitism. All broadcasters, eminent or otherwise, should be paid only uniform and very modest fees, perhaps not more than Rs. 25. This will discourage patronage and parasitism, bring out the best in our writers. poets, commentators and artists and broadbase participation in the programmes. The state's duty to encourage or patronise art and literature is a feudal idea. However, the state may have a duty to come to the rescue of genuine artists, writers and poets who are indigent. There are ways of doing this duty other than through special fees for broadcasting.

A Great Opportunity

As for the present staff while transitional arrangements may be necessary, their sectional interests cannot override a policy of profound national consequence. One hopes that populism will not interfere with a sensible policy. Similarly clerical and house keeping jobs should be greatly reduced.

In short this is a great opportunity for the Verghese Commission to recommend a whole new administrative and creative culture. The composition of the commission has raised high hopes.

IGNORAMAN

wants to know
if the music hall stage
was particularly chosen
to launch the haunting
spiritual
"Jail is Beautiful".

Rural Health Scheme

THE NEW rural health scheme being launched on Gandhi Jayanti lays stress on the preventive aspect. The community health worker (CHW) will be chosen from among the local community. In fact, what is being launched on Gandhi Jayanti is the training of the first batch of 20 community health workers from selected primary health centres. The services of these workers will be available only after the training is over. There will, therefore, be a time lag between the launching of the scheme and the availability of services through CHWs

Since the CHW is to be chosen by the community for its own benefit, it is hoped that the community will take a lot of care in choosing the worker. He should be acceptable to all sections of the community and should have not only an aptitude but the time for serving the people. Since his main task will be to educate the community in preventive and promotional aspects of health, it would be useful if he is chosen from among those who are already engaged in such public service as a local practitioner of any system of medicine, a village *dai* or a school teacher, provided, of course, he or she is found otherwise suitable and acceptable.

It is necessary for the people to know that this CHW is not meant to be a qualified doctor. They should not expect from him highly technical services for all their ailments and other medical problems.

What the CHW can and will do is that he can take care of minor ailments, give first-aid and relief and help the people to get in touch with the primary health centres and other medical institutions for proper diagnosis and treatment of chronic and serious conditions.

What CHW Can And What He Cannot Do

It is important for the community to know what the CHW can do and what he cannot do, otherwise high expectations are likely to be raised and there will be resentment and disappointment if these expectations are not fulfilled. In such a situation, the purpose of the scheme is likely to be defeated.

The CHW will often be a person of limited education. He is being trained for three months in preventive and promotional aspects of health, and in giving information on the health services available in an area. Since medical care facilities are not available in many villages, the CHW will be trained in giving relief for minor ailments, as already stated. For this purpose, he will have a kit of remedies and medicines.

The entire idea of the scheme to make the people aware of t importance of health care. Th is not sufficient knowledge now the curative and rehabilitative s vices available in the nearby are This knowledge will have to imparted to them so that there m be the best use of the availa services for the overall improvem of community health.

A Community Effort

The government comes in o by way of helping the program to be managed by the commun itself. It would be open to t community to look for a person w has some formal education, at le up to the matriculation standa In tribal and backward areas so relaxation may have to be made

The great merit of the rural hea scheme is that it is not rigid. recognises that in a country great variety of custom and usa wide variations will be both ne ssary and desirable

As the scheme progresses, CHW will acquire some limi knowledge of curative methods. manual will be given to him enable him to perform his functi well. At the moment, it is proposed to entrust him with i munisation tasks. His work be monitored by multipurpose wo ers who will also give him guidan

In order that the training may useful, special training manuals being prepared.

In short, the new rural hea

scheme is nothing more than a humble effort to promote among the community an awareness of the importance of some rudimentary health care measures and to give the community the help of a person who will have some training and greater access to those who cantreat the people for more serious ailments. The origin of this scheme is in the recognition that a lot of health problems can be solved by preventive measures. It is in this area that a great deal of health education has to be imparted to the people. In villages and in some areas of towns, environmental sanitation is poor, drinking water is not safe and personal hygiene is almost totally neglected. If these defects are remedied, many communicable diseases can be prevented. In chronic ailments like TB and leprosy where the treatment is prolonged, people will have to be educated in following the treatment regimen prescribed by the doctor. In these and other smaller ways the CHW can be of crucial help to the people

EXTENSION OF MEDICAL SERVICES

The larger question of extending complete medical facilities to the villages remains. Despite the exhortations of leaders, it has not been possible to persuade the doctors to go to the villages in any appreciable numbers. Some objective system has to be devised for this. The government hopes to find a solution in consultation with the Medical Council of India, the Indian Medical Association and other official and voluntary bodies. The solution would include incentives in the form of better facilities of life like housing for the doctors, as indeed for other functionaries in the village areas.

At the moment medical care in the villages is of the most meagre kind. Rural housing does not conduce to better health. The villages and urban slums have been the hunting ground not only of epidemic diseases but of ailments resulting from nutrition deficiencies. Improvement of health of the people is not only good economics but good politics because only a healthy people can assert their rights.

The first efforts in improving rural health were made in the twenties of this century. Gandhiji's emphasis on simple and effective rural development measures increased public awareness of the problems of the people of the villages.

It is only after the advent of freedom, however that more serious efforts were made in this direction. We now have a network of 5,372 primary health centres, each centre headed by a doctor or two and helped by a score of para-medical staff. Even so, overwhelming sections of the people do not have the basic health services. The doctor-patient ratio in the villages is very low.

IMPORTANCE OF PREVENTIVE MEASURES

It is in this context that the rural health scheme has to be viewed. To begin with, slightly under 800 PHCs will be covered. In 28 districts where the multi-purpose health workers training has been completed, the entire district will be taken up. It is hoped that within two years the scheme will cover all the villages. Its success will depend on how much the community itself recognises the importance of simple methods of sanitation as well as prevention of diseases and promotion of health care. This alone will make a big difference in the morbidity and mortality patterns in the country.

"We Want Industry, but........"

The other day, an American friend, Professor Sam Higginbottom, writing to me upon a subject in which both he and I are deeply interested, said—'I give you the substance of the letter—I don't believe in a religion bereft of economics. Religion, to be worth anything, must be capable of being reduced, when necessary, to terms of economics'. I entirely endorse this remark with a big mental reservation.........Whereas religion, to be worth anything, must be capable of being reduced to terms of economics, economics, to be worth anything, must also be capable of being reduced to terms of religion or spirituality. Therefore, in this scheme of religion-cum-economics, there is no room for exploitation and for Americanisation as the technical term is known. As a distinguished son of India put it he is no other than Sir M. Vishveshwarayya—whereas an Englishman owns 30 slaves—or is it 36 ? I speak subject to correction—an American owns 33 slaves. Personally, I think there is no room in true economics, which is convertible with religion, for the owning of slaves whether they are human beings, cattle or machinery. There is no room for slavery in economics.

As a moderately intelligent man, I know that man cannot live without industry. Therefore, I cannot be opposed to industrialisation. But I have a great concern about introducing machine industry. The machine produces much too fast, and brings with it a sort of economic system which I cannot grasp. I do not want to accept something when I see its evil effects which outweigh whatever good it brings in. I want the dumb millions of our land to be healthy and happy, and I want them to grow spiritually. As yet for this purpose, we do not need the machine. There are many, too many idle hands. But as we grow in understanding, if we feel the need of machines, we certainly will have them. We want industry, but let us become industrious. Let us become more self-dependent, then we will not follow the other peoples lead so much. We shall introduce machinery if and when we need them. Once we have shaped our life on ahimsa we shall know how to control the machine.

—Mahatma Gandhi

SIKANDAR BAKHT'S PLAN

IT IS A LITTLE flattering to feel that the ideas of *Yojana* on ministerial palaces are in line with official thinking. Readers may be a little intrigued about the sequence of our comments and Shri Sikandar Bakht's news conference. The simple fact is that the mechanics of bringing out a government journal are not very different from those of our planning process. A journal from *Yojana Bhavan* can be expected to capture the leisurely pace of the thinking, acting and reviewing that goes on in its sprawling floors. The simple fact is that it takes almost a month for what is written to get printed.

In any event we can assure our readers that *Yojana's* comments on Delhi's ostentation were written at least a week earlier than the Minister had spoken.

Our satisfaction ends at Shri Sikandar Bakht's decision to evict the ministers and senior officers from their bungalows. Otherwise, his ideas are capable of further refinement. He has said something about the ministers' houses having residential offices. It is to be hoped that second thoughts will prevail. A home, as the English say, is one's castle, shielded from the hordes of visitors. Except for a small study (six feet by eight feet at the most) where a personal assistant may receive urgent calls, record the requests for appointments and otherwise spare the minister from the routine chores of office, there is no need of any residential office. The personal assistant may sit in the room between six and eight in the morning and six and ten in the evening.

It is a peculiar status symbol of the Indian administrative system that ministers and administrators take home a pile of office work. Perhaps the first lesson to be learnt by these VIP's is that office work should not be done at the house.

A separate bungalow with many spare rooms will precisely convert the home into a *dharmasala*. The lawns will be filled with visitors and the rooms with all manner of guests making life miserable for the ministers. A functional and modest flat with all the modern comfort—not luxury—is the ideal both for austerity and for that kind of domestic relaxation which our hard-pressed ministers sorely need.

Is there really need of new construction? It is not a question of economy. The idea of a ministerial colony jars. It should not be difficult to find fifty flats or units of buildings (not bungalows) scattered over Delhi's many avenues and colonies to satisfy all the functional needs of ministers. The simple way of solving the problem of present occupants is to abolish fifty of the senior civil service posts in course of time. This will add to efficiency.

Shri Sikandar Bakht wants to pull down the present bungalows. It is a laudable idea to vacate the private buildings wherein government offices are located at high rents. The racket of involvement of government officers with private house owners is one of Delhi's crying scandals. But this vacating of private buildings need not be at the cost of Lutyen's spatial concept. There is nothing feudal or extravagant in pleading that Delhi's u[nique]queness among the world cap[itals] be preserved. Already some [da]mage has been done. More [van]dalism will be almost sacrilegi[ous]. Various social uses for these [bun]galows consistent with the envi[ron]ment should not be difficult [to] find. As for offices in pri[vate] buildings, perhaps many of t[hem] may be found less than us[eful]; some may be sent out of D[elhi] thereby relieving Delhi's hou[sing] problem, and one big multi-stor[eyed] complex may be built on the [out]skirts of Delhi.

Shri Sikandar Bakht has [held] out hopes of 30,000 new flats [in] New Delhi for government serva[nts]. This will gravely imperil [the] scheme of pruning Delhi's bu[rea]ucracy to size. One would [have] thought that the Janata Party, [with] its bias for the villages, w[ould] have a plan for reducing [the] parasitism of a non-functional [bu]reaucracy of Delhi. This ap[proach] to invest on buildings in D[elhi] will be a travesty of prioritie[s in] a country like ours. A whole b[ody] of social philosophy is availa[ble] which not only frowns upon [me]tropolitan madness but stro[ngly] pleads for reducing the size of cities.

A suggested routine for ministers

Our ministers, judging from newspaper reports and also from the experience of those who have watched them, cannot call even a minute their own; which is why probably this country is often in a state of tension.

It would be good if the ministers (central and state) organise themselves into a trade union and demand an eight hour day, a five day week, a three week month and a eleven month year. Good as much for them as for the country. A suggested routine will be as follows:

Get up at five in the morning, do exercise, walk, meditate and relax till seven, spend an hour reading newspapers or with children, have breakfast and reach office at 8.30. Interview with the *Janata* till 10.30, files till 12.30, lunch and relaxation till 14.30, official conference till 16.00 tea till 16.30, interviews by appointment till 18.00 hrs, back home by 18.30, a quick wash, some outing with family, dinner at 20.30, relax and go to bed at 22.00 or 23.00 hrs depending upon one's personal preference.

No work on Saturdays and Sundays. One week every month for tours. One month every year for a complete holiday.

It is absurd to think that an e[xtra] three hours a day helps in disp[osal] of a great deal of work. The [new] system will work only if establis[hed] notions of personal secretariat [are] abandoned. For a minister t[here] is no personal secretariat as s[uch]. The entire ministry is his pers[onal] secretariat. The size depends [on] the fucntions. A functional [dis]tribution on the basis of a mi[nis]ter's concept of his work, the ass[em]bling of a blend of experience [and] youth without a hierarchical sche[me], a clear understanding of the [dis]tinction between policy, coord[ina]tion and field functions, evolvin[g a] system of monitoring, institu[ting] a system of subject-wise files [of] decisions handed down by mini[ster] at his official conferences, g[oing] over these decisions and their im[ple]mentation at every subsequent [con]ference and, above all, ma[king] everyone know that the mini[ster] is the boss who will have the ch[oice] of his secretariat subject *not* to s[ervice] procedure but to the Prime Mi[nis]ter's approval—this and a little n[ore] will make the minister effec[tive,] relaxed and useful to society.

—*SANJ[...]*

Rural Economy Should be Basis of Industrial Growth

—*Ajit Kumar Singh*

CONSIDERING THE way in which a shift in development priorities is being advocated, one fears that agricultural fundamentalism may replace industrial fundamentalism. Neglect of any sector would be clearly a mistake in the present Indian context.

In the early stages of growth every nation faces the problem of determining correct development priorities, specially between agriculture and industry. Swayed by the glamour of the industrialised countries, development planners took industrialisation to be synonymous with economic development not only in India but in most developing countries. The problems of agricultural development tended to receive lesser attention. The result was that in spite of the establishment of several modern industries and other symbols of development, there was hardly any change in the rural conditions. Burgeoning cities and expanding urban slums went on along with decaying villages This forced the planners to reconsider the approprirateness of their policies in several countries

When India took to the path of planned economic development in 1951 she had two choices—either to follow the path (which Russia had adopted with conspicuous success) of pushing headlong with a big programme of heavy industrialisation; or to try which had not been tried before but was in tune with the Indian tradition, namely, transformation of the rural economy Broadly these two paths can be called the Stalinist and Gandhian paths respectively. Under the dominating influence of people like Nehru and Mahalanobis, the Planning Commission chose the Stalinist path. The mainstream of the Indian economists justified this strategy, though there were stray voices which regarded this strategy as inappropriate for the country.

Errors of Strategy

There are indeed weighty arguments in favour of the heavy industry strategy. For self-reliant and self-sustained growth we need basic industries like steel, chemicals and machine building. Adequate natural resources are available in the country to support their creation. Chronic balance of payment disequilibrium precluded the option of large scale import of capital goods. A succession of good crops in the early fifties and the easy availability of concessional food aid further made this strategy more attractive. The heavy industries have also contiibuted to defence capabilities.

However, the development strategy based upon basic and heavy industries erred on three important grounds. First, it led to a relative neglect of agriculture and rural and small industries, thereby keeping a very large segment of the national economy outside the growth processes. The shortfalls in agricultural production have time and again jeopardised the smooth pace of development of the national economy. Second, the emphasis on capital goods and long gestation projects led to a serious imbalance in the demand and supply of wage goods contributing to inflationary pressure and generating widespread labour unrest Third, there has been a lack of proper co-ordination between the growth of the heavy industries and the requirements of other sectors of the economy In particular the pattern of industrial expansion did not serve the ends of agricultural development The result was a glut of capital and intermediate goods at times, while the general economy remained at a low level of development The technical and industrial capabilities developed over the years had to seek an outlet in the foreign markets

These are indeed serious failures which justify a fresh look at our development strategy. A particular development strategy should not be regarded as something sacrosanct. It should be flexible enough to take into account the changing economic scene. What was justified at a particular stage need not be so at a different stage. Moreover, our options were quite limited to begin with. Today the ability of the economy to manoeuvre and experiment is greater than in the past.

Priority for agriculture and small industry is a sound idea, provided this does not imply absolute neglect of big industry. The choice is not between industry and agriculture or between small and large industry but between balanced and lopsided development. A sudden break with the existing pattern of development is not possible and created capacities cannot be allowed to remain idle.

The rural and the industrial sectors cannot be treated as unrelated parts of the economy. Success in ending rural poverty depends in a large measure, on the overall capabilities of the entire economy and the state of industrial progress. Similarly infra-structural facilities are as necessary for agriculutre as for industry. Only by strengthening the secondary and the tertiary sectors can we hope to revitalise the rural economy.

Need to Correct Urban bias

Financial allocations for a particular sector are only a rough indicator of its relative importance. For one thing, the allocations for other sectors contribute directly or indirectly to the development of the sector in question. Moreover, there is the problem of absorptive capacity of each sector, which depends, among other things, on the availability of well-prepared projects and programmes as well as the capacity of the administration to carry them out. In the case of agriculutre and small industry, organisational and institutional changes are likely to help more than direct financial allocations. Even more important than the financial provisions is the attitude of the concerned people towards the development of any sector. Leadership can play a crucial role in bringing about the required attitudinal changes.

Our plans have had an urban bias since the beginning as most of the planners and the officials entrusted with plan implementation have an urban background. It is this inherent urban bias in the plans which must yield place to a rural bias. The biggest challenge before the Planning Commission is the evolution of a pattern of industrialisation which helps in the modernisation and development of agriculture and rural industries that is, a pattern which would not be a mere instrument of economic exploitation of rural resources The guiding principle should be the extent to which they serve the needs of the rural economy. If we succeed in this task, we will be able to make a visible impact on the living standards of the rural masses within a decade or so. A dynamic and prosperous rural economy will in its turn strengthen the process of rapid industrialisation. □

Integrated Rural Development Some Policy Issues

—*J.G. Srivastava*

NO PROBLEM today is as great as poverty and backwardness in rural and remote areas. ere is significant gap between the ral rich and rural poor in India. meet this alarming situation tegrated Rural Development programme has been conceived. While e present efforts in this direction e making their own contributions, any policy issues arise as whether ey reflect the best ways of tackling e massive problem of poverty and ckwardness in rural areas. The her related issues before us are :

(i) what do we mean by rural backwardness and poverty and what is the poverty level/lines,

(ii) what is the method of indentification of rural poor,

(iii) what are their aspirations, needs and demands,

(iv) who assess the (iii) above and what are their competance and experience in the analysis of rural poverty,

(v) what are the value systems and life styles (one wants in relation to wants, needs and aspirations),

(vi) what is the national policy, goal and plan for eradication of rural poverty,

(vii) what do we mean by distributive justice of the proceeds of development with reference to rural poor,

(viii) what is the method of evaluations, and measurement of eliminations of poverty,

(ix) what constitutes successes and failures of a programme in rural development.

(x) how to assess the assessors, assess their basic qualification, competence of planners (than plan), assess the people, group, institution who implement, monitor or evaluate,

(xi) what are the gaps between individuals, groups, institution etc., engaged in rural development and the linkages between planning (at different levels) and implementation of the programme (organisation and management),

(xii) what technological tasks could be dovetailed to the national goals and plans,

(xiii) how to integrate people's competance, expertise resources and manpower and what comes in way of such "integration"

(xiv) how to generate the spirit of cooperation, team spirit among various agencies, groups, departments, and institutions to make them more effective and work in an integrated manner (by giving the implementing department some authority),

(xv) what 'education' is required for rural areas and rural development,

(xvi) what education can enrich the quality of life of the rural poor and help to make them self-confident and self-reliant,

(xvii) what could be the role of education and rural school and its teacher in the development of 'man' and how can it be knitted in the fabric of rural development programme,

(xviii) what are the viable 'non-crop growing' productive/economic programmes which may generate employment/additional wages and which are the competent institutions,

(xix) problems facilities, inputs, skills of technologies that could be determined for above (xviii),

(xx) how to assign these tasks to the competent people agencies and institutions,

(xxi) what is considered as an 'appropriate technology' in the context of eradication of poverty in rural areas, how can rural projects be made socially/viable,

(xxii) what is the national policy plan and goal for the above in relation to technological, fiscal, incentive, protection, regionalization, entrepreneurial tasks,

(xxiii) what are our programmes for landless labourers and those educated unemployed (landless) who want to stay in the village,

(xxiv) what should be the infrastructure for rural development if 'the development of a grassroots man' is taken into consideration; how to involve the rural poor in the development process,

(xxv) what should be role of NES blocks in the above context and in the 'Integrated Rural Development' programme of the Govt. of India; can it not be made wholly responsible to rural poor of the block area,

(xxvi) could the population of rural poor in a village be a viable unit for the implementation of programmes aimed at eliminating poverty, providing minimum aminities of life (safe drinking water, shelter, assured minimum wages) and welfare services (medical aid, education, recreation and mid-day meal to children),

(xxvii) what is the minimum economic unit of cultivable land for agriculture with reference to productivity (breakeven point of production) of food crops, economic plantation, spices, medicinal and aromatic plants, etc.

(xxviii) what could be done to enlist the active and effective participations of rural poor; what factors hamper their participation, and

(xxix) what do we mean by monitoring, evaluation and operations research with regard to rural development, what is our experience; who are the evaluators with what rural values, and experience.

These are just a few questions which require a positive direction, philosophy, and national policy with the progressive economic, social and psychological development in the

country. There is also the need for a continued vigilance and revision of philosophy of rural development. Till today, we have been mainly concentrating on agricultural development. True it forms the base, but what about the questions raised above.

This further draws, our attention towards the following issues in the context of eradications of rural poverty;

(i) agriculture (including animal husbandry) development is the only answer to above,

(ii) those who are responsible for above have little access to economic programmes other than agriculture,

(iii) those who are planning and implementing the programme are not aware of the significance of science and technology inputs (other than agriculture science),

(vi) the science and technology inputs have either an insignificant role to play, or they are not yet mature for introduction, or we want to keep our eyes shut in relation to this area for reasons best known to those at the helm of the affairs.

Unless there is a radical rethinking on the rural development programme aimed at the 'development of man (rural poor), and blending of ideas and experience of 'Gramsevak', we may not be able to solve the problem of rural poverty.

This percolates iessues like—

—the role of science and technology,

—the role of organisation, management and structure of achieving the objectives;

—agriculture must become an agri-industry and agri-business by maximising the returns, the utilization and recycling of the waste materials.

Management

When we talk that people are not educated we only mean that they don't have the means to earn their basic needs and not that they are ingorant. Integrated Rural Developmenti an inter-related approach of making good use of water, soil, crop, post-harvest technology and their managment. Other aspect is application of technology and making people (who are responsible for planning and implementation of the programme) aware of the significance of scientific and technological inputs (other than agriculture science). The later part requires consideration.

Further, there is the question of project concept and awareness, which actually relates to the cost of physical requirements (experts, tools, technology, extension), R&D, efforts (implementing department should have *full authority and acess to ensure* that the problems of rural poor and referred to and got resolved by *any istitution* private or public in India), vis-a-vis the benefits accruing to the rural people. Do we have this aspect in mind?

Transfer of Technology

Generating technology is one thing, but the success of transfer of technology to the prospective users depends upon how fully the technology is baked, how far the users (rural people in this case) are capable of adopting, absorbing and utilising the technology, how well the mechanism and means of transfer are good in choosing the proper channels of wave length, method of communication, dissemination and demonstration, and finally, the socio-economic climate around commitment and involvement of the government, their risk-taking ability, and sense of urgency. The question, therefore, arises as what are operational constraints in the transfer of technology to rural areas for a given purpose, situation, locality, availability of local resources of men and material.

Absorbing the Losses

'Seeing is believing', doing is convincing' and 'earning is confiding'. To inculcate self-confidence among the rural poor, we need not only to demonstrate the project successfully but also to take the responsibility of losses if any. The rural poor should be helped by promising that if there is profit in a project which they undertake they take the profit, while the losses if any are that of the implementing agency.

Can We Take This Decision ?

Human Factors :

While taking decisions we usually ignore human factors like professional jealousy, stealing the credits of someone, other personnel problems, name and fame etc.

What are the social lubricants we should use in such situation?

What should be the institutional behaviour, approach and imagination of the leader?

Do we give responsibility with vested authority?

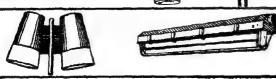
Who is vested with financial control and administrative control on 'CR'?

Interphasing and interaction a[re] very important. This requires build[ing] up of workable linkages. The[re] are successful stories of blending o[f] two or more institutions engaged i[n] rural development. How many o[f] these facilities we could manage t[o] get the job done.

Project Study

In view of above it is strongl[y] proposed that while Departmen[t] of Rural Development, Governmen[t] of India may go ahead with its IR[D] Programme, it should simultaneousl[y] set up a permanent study grou[p] consisting of economists, sociologist[s], operations research expert, scienti[sts] and the village level worker to wor[k] simultaneously on such aspects a[s] may strengthen the hands of thos[e] who are engaged in the vital projec[t] of IRD.

RECOMMENDATIONS

1. If such research is undertake[n] on the basis of socio-economi[c] development of recent past (fifth five year plan) it woul[d] certainly expose better infor[mation].
2. Such researches should be re[petitive] (at an interval of tw[o] years) to get an idea of develop[ment] and flow of knowledge temporary or lasting impact o[n] the people, which would form a food base for policy plannin[g] leading to better utilization o[f] R.D. efforts.
3. Training samples for differen[t] strata of people staying i[n] different climatic and ecological zones be prepared and studied with the aim of 'development of man'.
4. Action-research institutes (lik[e] the one in Uttar Pradesh) ma[y] be started in different geographical and ecological zones and the NICD should collaborate with these institutions and universities. NICD should als[o] sponsor research with funds t[o] competent people and institutions (including social voluntary organisation).
5. R.D. Min. should have a permanent (Research & Study) Group to study findings of such research for consideration o[f] action-research on pilot scale. Successful items should be recommended for extension in the related areas.
6. The intimate involvement of the users, beneficiaries and sample[s] of target group should b[e] encouraged in such researches.

Protein deficiency has acquired appalling proportions in recent years in the diet of our rural people. Fish can, therefore, become an important nutritional supplement to their diet. Besides providing nutrition, given scientific methods, fish farming can be an important source of income for rural institutions like Gram panchayats and village cooperatives as well as individuals.

Fish Farming—
Profit, Nutrition

MADHYA PRADESH IS particularly fortunate in inland water resources when comparted to some other states of the country. There are about 40,000 small tanks most of them in the south-eastern part of the State which can be easily used for fish farming. Given scientific methods, growing fish in them can be a very paying proposition.

Considerable research has been undertaken in the state to identify the most economic species of fish and to breed and rear them.

Selection of Tank

Proper selection of tank and its improvement is vital to fish farming. This is even more important while selecting a tank for the first time for the purpose. A tank admeasuring from one to three hectares and holding water about two metres deep is ideal. Its bunds should be in good repair and it should have a proper inlet and outlet for water. It should be easily accessible and fairly clean.

The tank bottom should be even and should not be either very rockey, miry of sandy. There should not be much acquatic weed as these impede fishing and might compete for food with fish.

Preparation

This is the season for preparing the selected tank for fish farming. The best thing to do is to dewater the tank and clear it of mud, vegetation, predators and insects which might harm fish. This would yield much unwanted fish which could be consumed or sold in local markets.

When the tank fills up it is ready to receive fingerlings. To enrich the water, cow-dung manure and chemical fertilizers may be dissolved in it 10 to 12 days prior to releasing fingerlings. The application of 3000 kg. of cow-dung manure per hectare scattered evenly over the water spread has been found to be ideal, 300 to 400 kg. of triple superphosphate and ammonium sulphate will further enrich the water. These fertilisers may be applied in more than one instalment. Cow—dung manure can also be applied by lowering it in bamboo baskets into the water and allowing it to dissolve slowly. This also obviates the risks of pollution. Application of manure and fertilisers help in the prolific growth of phyto and zoo-plankton upon which fish feed. A practical method of assessing whether there is enough food for fish is to lower one's hand into the water upto the elbow. If there is enough plankton the first will not be visible. Should it be visible it can be presumed that the water is poor in planktons. At this stage additionnal quantities of cow-dung compost can be slowly dissolved in water by placing it in bamboo baskets. If the quantity of plankton goes down considerably it may also be necessary to feed fish on artificial feed supplements like oil cake and rice bran in equal proportion. Such feed can be given by scattering it on the water surface. As such the quantity of plankton comes up to the proper level which can be judged by the simple hand test, artificial feed should be discontinued.

Stocking

A tank thus prepared for growing fish should always be stocked with good quality, fast growing fingerling. Although it is possible to grow only one variety of carp in a given tank it is more economical and profitable to grow three or four verieties of together, because different Varietes carps feed at different levels. Some feed at the bottom others feed at the top, some feed in columns and yet others feed on grass and other acquatic vegetations in the periphery. Catla, Rohu, Mirgal and the Common carp may be grown together. If the fish mix includes Catla, Rohu and Mirgal the proporation should be 4;3;3. Should common carp be added the combination can be put at 4:2;2:2.

Prior to the release of fingerlings the water in the tank should be thoroughly agitated which will help in decreating the surface water temperature. Fingerlings should then be lowered into the tank in a happa and after they are conditioned to the tank water for a while they may be allowed to escape into the water slowly. Alternatively, fingerlings can also be lowered into the water in buckets and allowed to escape slowly.

A careful watch should be maintained on the growth of fish, say once in a month, Predators like frogs, water fowl, rels, cat fish etc. should not be allowed to inhabit or frequent the tank. Should water level go down very low during the summer, the tank should either be filled from some external source or the fish should be extracted for consumption and sale. The tank bunds, the outlet and the growth of weeds should also be carefully watched with a view to repairing and controlling them.

To provide shelter to fish a section of the tank may be deepened a little the tank should be kept clear of weed so that fish may move freely in the water. Aquatic weeds should be removed manually from time to time and where this does not help even chemical eradication can be considered. For this the advice of the Fisheries Officer should always be sought. He should also be consulted for the prevention of aquatic insects and diseases affecting fish.

Netting

If due care is given, the fingerlings should grow to about three-quarters to a kilogram in weight in a year's time. These can be netted and sold. Marketing of fish should be planned in advance. before the actual netting operation. Netting requires the services of fishermen.☐

Yojana Quiz

1. Who was Ota Bapa?

2. Gandhiji's father called him 'Manu'. What did his mother call him?

3. On September 4, 1888, Gandhiji sailed for England by a steam ship. What was it's name?

3. "I am sitting on a man's neck, choking him, and demanding that he carry me, and without getting off him, I assure myself and others that I am very sorry for him and want to alleviate his condition by all possible means except by getting off his neck." Who said this?

5. What was Tolstoy Farm?

6. When and where was the most expensive lump o salt ever sold in India?

Answers :

Gandhi, was affectionately called Ota Bapa by the people. (2) Moniya (3) S.S. Clyde (4) Leo Tolstoy (5) Satyagraha campaign was then going on in Natal. There was a need for a place where the wives and children of imprisoned Satyagrahis could take refuge. Mr. Hermann Kallenbach bought a 1,100 acre farm at Lawley, twenty miles from Johannesburg, and gave it free of charge for the use of Satyagrahis. Gandhiji decided to call it Tolstoy Farm. (6) At Dandi on April 6, 1930 Gandhiji solemnly bent down, picked up a small lump of natural salt, and later on sold it through auction for Rs. 1600.

Quotation Box

Democracy is not all politics but is also the respect you give to your wife in the home.

—V.M. Tarkunde
Eminent Lawyer

* *

There are no soft options if you really mean to eradicate poverty.

—George Fernandes

* *

The forces that recently worked for destruction of freedom and democracy are merely like a wounded animal. They are not dead. A wounded tiger is more dangerous than one which is normal.

* *

Please do not pamper the leaders. You spoil them by doing so.

—J.B. Kripalani

* *

I wish there was an examination for members of parliament.

—N.A Palkhiwala

* *

We cannot raise the standard of all schools Why should we bring down the standards of existing schools.

—Pratap Chandar Chunder

* *

I suppose inside I'm still very puritan about this whole thing of being extravagant about clothes and only thinking about clothes And while I feel that my entire life is in search of beauty and I want to make women look beautiful and I adore beautiful fabrics, beautiful fabrics are frightfully expensive. So there's a guilt feeling as well.

—Thea Porter
British dress designer.

* *

If you are going to race because you are stupid, you are going to die. But I knew that I wouldn't be killed in a shunt because I always left myself sufficient room to negotiate with death.

—Stirling Moss
Who won 222 out of the 496 motor races he started

Evolution of Panchayati Raj

Panchayati Raj in India : A Study of Reforms at Centre and State Level since Independence *by S.K. Sharma; Trimurti Publications, New Delhi,* 1976; *Pages* 172; *Price Rs.* 30.

DEMOCRATIC decentralisation was adopted as a scheme to involve the willing participation of the people in the developmental process of nation-building activities. Panchayati raj was established with a great fanfare and in the initial years there was a great enthusiasm, sense of purpose, dynamism, official support and patronage but later the movement slowed down in effort and intensity. The book under review is an excellent account of the evolution of the system through commissions and committees set up at the Centre and State level since Independence. The study is a valuable contribution to the existing literature and fills a big gap.

Published as a part of Silver Jubilee Celebrations of Panchayats, the author has identified some of the weak points and deficiencies of the system. To bring out reports from the archives and to analyse them in a given framework is not an easy task. The study has shown that contrary to the popular belife, the realisation by the people of their own political power as also the knowledge about various processes of development have permeated to the lowest level. The system has widened the area of people's participation, autonomy and authority through the dispersion and devolution of power to popular organisations in all the triple dimensions of policy-making, financial control and administrative

management. On the other hand it cannot be ignored that every village is a divided house. The benefits of several of the programmes have only gone to a select few. The philosophy behind the setting up of *nyaya panchayats* has mostly failed to click. There is no budgetary freedom or autonomy and excessive state control kills the initiative. In terms of interest articulation, interest aggregation, local politics and national politics can be described as loose.

Whether studies are conducted or not, panchayati raj is going to stay and much of the tension between the various wings can be avoided by streamlining the structure. The Janata Government is committed to the people to implement the panchayati raj in the Gandhian spirit. This is a big challenge to the administrators and the academicians. Balwantrai Mehta devised the three-tier structure which deviated from Gandhian path. Should we put the clock back? Should we mend or end the present system? The last chapter of the book gives a way out when it is suggested that in the wake of the integrated rural development strategy, not a tear will be shed if the present system is uprooted. However, there is a long way to go yet. Ultimately the trust of the people is the basic postulate of these institutions and let that trust be strengthened by word and deed. A little care to fix a reasonable price would have increased the circulation but still no serious admirer of the system can afford not to buy the book. It is a commendable effort in presenting Panchayati raj in an analytical framework with scholastic vision and researchers depth.

—Y.C. Simhadri

Japanese Model of Planning

Development Planning : Lessons From Japanese Model *by V.S. Mahajan; Published by Minerva Associates Pvt. Ltd Calcutta,* 1976; *Pages X*+122

FOR THE crusade against poverty and unemployment in India, there can be no two opinions about the need for fresh approaches to planning and development.

A fervent plea is made in this book for the incorporation of the Japanese model into our development planning. The book is divided into three parts with twelve chapters. A historical analysis of the development of the Japanese economy—the functioning of the military rule, the role of the Government in creating a network of infrastructure facilities, growth maximising effect of agriculture and Japan's role in international commerce, has been painstakingly traced.

A study of Japanese economy brings to light the role of the State in development planning. The lessons to be "learnt" from the Japanese model is that the State should be careful regarding public sector programmes. According to the author, the State should undertake only such projects which reasources permit and also carry a rapid growth multiplying effect. Excessive involvement of the State in every economic activity, the author adds, would jeopardise their growth.

One gets the impression that the author has a soft corner for the private sector. The author envisages a greater role for the private sector, as is the case with Japan. He contends that it is the fear of nationalisation that encourages entrepreneurs to follow dubious business practices, thereby giving a clean chit to the private sector. Industrial atmosphere in India is, however, different. Here both the private and public sector have a role to play and should complement each other.

The author conveniently forgets that the Japanese miracle is over. The economic problem has reared its head again. Politicians in Tokyo, as in other capitals, are debating fiercely the familiar questions : how to maintain the economic growth rate, reconcile the competing demands of public welfare and public investment on limited resources and overcome the energy crisis.

Indeed there are as much lessons to be learnt as there are lessons to be "unlearnt" from the Japanese model enunciated in this book.

—R. Muralidhar

Pathways to Rural Prosperity

Eradication of Rural Poverty *by Shri Ramakrishna Vidyalaya, Coimbatore; Pages* 261; *Price Rs* 12.

THIS volume is a collection of speeches and papers presented at the Swami Vivekananda Centenary Commemoration National Seminar on Eradication of Rural Poverty which was held in November 1975 at Coimbatore by the Vidyalaya.

Rural development has shot to prominence in the last few months and is likely to receive greater emphasis in the policies and plans of the present government. In this context, the publication of this volume is quite timely and welcome. Particular mention may be made of the paper on the 'Role of Agriculture and Agro, Khadi and other industries which gives a good idea of the magnitude of existing and future unemployment in rural areas The paper also indicates the employment potentialities of such programmes as improved agricultural pratices, expansion of irrigation, multiple cropping, dry farming and that of other rural activities like animal husbandry, dairying, village and small scale industries. The paper holds out the promise of elimination of rural unemployment by the end of this century. Experiments in providing employment in villages is another paper which throws light on the various efforts so far made for combating rural unemployment. It refers to some interesting experiments being made in certain States like Kerala and Karnataka where organisational innovations have been attempted to tackle unemployment on a self-financing basis. The results of such experiments can be particularly helpful in extending these practices beyond the limited confines of one or two States.

There are some useful papers on water management and agricultural occupations such as dairying, poultry, sericulture, sheep rearing is the theme of another paper. The papers pertaining to financing of rural activities show the size and pattern of credit flowing from various financial institutions to the rural sector and also the extent of availability of credit to different types of rural economic activity, to the weaker sections and to the backward areas of the country. Other papers naturally emphasise the need for social infrastructural facilities like expansion and re-orientation of education and training facilities, role of education/technical institutions therein; more rural roads, better water supply and health care.

A really useful section containing recommendations of the Seminar is given at the end. Though there is no denying the high utility of this volume even as it is, its utility could have been enhanced by including papers on topics like impact of land reforms, scope for placing rural development on self-financing basis. One or two case studies of rural development in the country would also have been welcome

—G.S.

CALCUTTA SLUMS

Calcutta has been often described as a city of slums. Not much attempt has, however, been made to understand the circumstance which led to the growth of these slums in this city.

The bustees (slums) of Calcutta are not just residential settlements. In fact, they are as old as the city itself. They grew with the city and increased in number as Calcutta become the centre of industrial activity. Over the years, much of the industry and employment in the unorganised or informal sector ranging from small engineering to footwear, woodcraft to garment making or plastic ware, came to be located in these bustees. Out of the city's total manufacturing employment of about 830,000 a little over half is accounted for in the informal sector.

The slums are not, as many think, squatter settlements, they are governed by regular tenancy system. As industries grew, marginal land was purchased by landlords and given to middlemen (thika tenants) on rent. These middlemen constructed slum houses which were let out and sublet to poor industrial workers.

Till 1969 no conscious effort was made to help the slum dwellers except meagre steps to rehouse them. It may also be mentioned that the last slum was improved in 1946 and Mahatma Gandhi lived in Beleghata for a few days.

In 1970, when the Calcutta Metropolitan Development Authority was set up one of its primary task was to improve the environmental hygiene of the metropolitan area. Since the number of slum dwellers in the metropolitan area, was over 20 lakh out of a total population of nearly 90 lakh, the attention of the CMDA was focussed on the slum problem. By that time, there were over 3,000 registered slums in the metropolitan area.

After the pilot and sociological surveys, it was decided that the physical removal of the slums and the slum dwellers was an impossible task. It was assessed that the number of per-capita cost of rehousing would be over Rs. 5,000. This would mean investing an astronomical sum of 1000 crore rupees for the purpose.

It was, therefore, decided that a programme of slum improvement as opposed to slum rehousing should be launched Under this programme, all the registered slums are being improved with the provision of drinking water, paved roads, electricity and sanitary latrines. The cost per capita varying between Rs. 120-150.

So far about Rs. 18 crore have been spent by the CMDA to provide the above mentioned facilities to over 1500 slums covering a population of over 12 lakh. Apart from the programme for improvement of slums, the CMDA has also taken up, at an experimental level, schemes for slum redevelopment and provision of sites and services in certain locations.

The programme will be continued till the remaining 1500 registered slums are improved.

— A.K. Matilal

Development Notes

Tansi Watch Unit

The work on the watch assembly unit being set up by the Tamil Nadu Small Industries Corporation (TANSI) in collaboration with Hindustan Machine Tools, Bangalore, is making good progress.

The Rs. 27 lakh project is being set up in Ooty in the Nilgiris district and is likely to go into production by the end of this year.

The capacity of the plant during the first year of operation will be 1.5 lakh numbers which will be stepped up to the full capacity of 2.5 lakh numbers per annum in the subsequent year.

The HMT will be supplying components for the watches and will take back the assembled watches for marketing by them. The annual turnover is expected to be around Rs. 15 lakh.

Under the agreement, HMT will give assistance in the supply of technical documents, training, lists of equipments, jigs, fixtures and tools and also in the procurement and installation of equipment. The TANSI project when in full operation is expected to give employment opportunities to about 100 workers. It had been proposed to employ mostly women as the job required dexterity in the hands of the operators.

Giant Fertiliser Plants Planned

Two giant fertiliser projects, involving a total outlay of nearly Rs. 450 crore, are being set up in south Bombay at Rewas to make use of the natural gas that will flow from the Bombay High oilfields. A decision by the Government on the two projects, which will have a total production capacity of 2,700 tonnes of ammonia per day. is expected soon.

The creation of such a massive fertiliser capacity, will go a long way in bridging the wide gap between availability and demand for chemical fertiliser. To meet the growing fertiliser requirement, the country had been spending around Rs. 450 crore on imports. Though lately the foreign exchange burden on account of fertiliser imports has been somewhat lower, primarily because of the sharp decline in the prices of fertiliser in the international market, there will continue to be sizable foreign exchange outgo for the import of fertilisers.

The technology in this regard is not likely to pose any major hurdle as a large number of units with 1,350 tonnes capacity are already operating in different countries.

Moreover, the location of the two plants adjacent to each other will provide a lot of additional benefits.

New Power Plants for Gujarat

The Gujarat Electricity Board plans to create additional generating capacity of 1,320 mw during the next five years, by setting up some new units and by expanding some of the sanctioned units. The new capacity planned will be over and above the latest sanctioned 600 mw Janakbari thermal power station.

With the completion of above projects, Gujarat will have two giant-size power complex of 1150 mw at Ukai and 1200 mw at Vanakbori. Practically these will be super thermal stations. The total installed power generating capacity which was 1142 mw by the end of the Fourth Plan, now stands at 1922 mw. As a result of the expansion programmes on hand, the total generating capacity will go up to 2432 mw by the end of the fifth plan and at that stage it will be just matching the demand.

NSC Hybrids for Denmark

For the first time export of hybrid varieties of seeds is being undertaken. The National Seeds Corporation has entered into a long-term agreement with a leading Western seed distribution organisation of Denmark for marketing abroad.

In the field of quality vegetable seeds production the NSC's efforts cover grooming progressive culivators in their production and helping them in handling proficiently export orders.

Over six lakh hectares have been covered under improved hybrid varieties of seeds for major kharif crops such as sorghum, bajra and maize Improved quality of seeds for these crops were made available to the farmers by the NSC.

The expected yields of hybrid crops covered by NSC seeds are estimated to be over 14 lakh tonnes. The production of these quality seeds was organised by NSC in different states where agro-climatic conditions favoured their production.

NSC has achieved a major break-through in jute seed production in areas which are not traditionally jute growing. The maximum consumption of jute seeds is in the eastern sector. But the highest quality seeds of jute are produced in the western sector especially Maharashtra.

ARDC Disburses Rs. 17.10 cr. in Bihar

The Agricultural Refinance and Development Corporation's disbursement in Bihar during the year ended June 30, 1977 was Rs. 17.10 crore. Aggregate disbursement in the state since the inception of corporation totals Rs. 49.59 crore.

Taking the country as a whole, the disbursement during the year ended June 30 this year was of the order of Rs. 221 crore, when the aggregate disbursement since its inception was Rs. 815 crore.

The funds advanced through the state Land Development Bank and other commercial banks covered 36 schemes in 1975-76 and 100 schemes in 1976-77 in Bihar. So far 194 schemes have been financed by ARDC funds in the state.

In regard to the extent of funds disbursed, Bihar ranked tenth among the states. Uttar Pradesh led with Rs. 120 crore covering as many as 625 schemes.

In order to reduce the regional imbalances the ARDC has categorised as less developed or under banked the states of Jammu and Kashmir, Himachal Pradesh, and Rajasthan in the northern region and all the states in the central, eastern and north eastern regions. The International Development Authority (IDA) has approved a two-year programme for the ARDC.

Handloom Exports

India's export of handloom products during 1976-77 has been provisionally placed at Rs 215 crore as compared to the estimated figure of Rs 185.49 crore in 1975-76. The items which were mainly exported included fabrics, made-ups and ready-made garments particularly bleeding Madras, real Madras handkerchiefs, floor coverings, bed covers and bedspreads, towels and napkins Besides cotton handloom items, silk and woollen handloom products also contributed to export hike.

Countrywise, the main importers were USA (Rs 3547 crore), UK (Rs 2448 crore), West Germany (Rs 2164 crore), Netherlands (Rs 64.5 crore), France (Rs 5.79 crore), Dahomey (Rs 5.24 crore) Italy (Rs 3 81 crore) Canada (Rs 3.19 crore), Sweden (Rs 2.94 crore), Australia (Rs 2.65 crore), Switzerland (Rs 2.38 crore), Japan (Rs 1.79 crore), Denmark (Rs 1.49 crore) and Saudi Arabia (Rs 1.21 crore).

Substantial Rise in Export of Plastics

India's export trade in plastics and linoleums registered substantial rise at Rs 260.37 million in 1976-77 compared to Rs 180.89 million in the previous year. The contribution of plastic items was Rs 241 million against Rs 160 million in the earlier year. The exports of plastic moulded and extruded goods have touched the figures of Rs 60 million in contrast to about Rs 36 million, having crossed twice over the target set at Rs 30 million for the year. The exports of PVC rigid pipes and conduits have more than trebled over the performance of 1975-76 which was Rs 14.5 million and approximated Rs 52 million in the subsequent year.

Railway Earnings Up

The Railway earnings increased by about Rs 30 crore during the quarter April-June 1977 as compared to the same period last year, both by way of effecting economies and carrying of additional passengers and cargo. During these three months the three production units of the railways—the Diesel Locomotive Works, Lucknow, the Chitaranjan Locomotive Works and the Integral Coach Factory, Madras have improved their production by 36 per cent.

The Diesel Locomotive Works produced 32 diesel locos as compared to 21 for the same period last year and the Chittaranjan Locomotive Works produced 22 electric locos as compared to 15 in 1976 while the Integral Coach Factory built 134 coaches from April-June 1977 in contrast to 130 in the three months in 1976 The Railways are hopeful of exceeding the fifth plan target of carrying 250 million tonnes of freight traffic by 1978-79

ADVICE TO LABOUR

The secret that we have hit upon is that when capital wants labour to say, "Yes", labour roars out "No", if it means, "No". And immediately labour comes to recognise that it has the choice before it of saying "Yes", when it wants to say "Yes", and "No", when it wants to say "No", labour is free of capital and capital has to woo labour And it would not matter in the slightest degree that capital has guns and even poison gas at its disposal Capital would still be perfectly helpless if labour would assert its dignity by making good its "No" Then, labour does not need to retaliate, but labour stands defiant receiving the bullets and poison gas and still insists upon its "No" The whole reason why labour so often fails is that, instead of sterilising capital as I have suggested, labour (I am speaking as a labourer myself) wants to seize capital and become capitalist itself in the worst sense of the term. . No man could be actively non-violent and not rise against social injustice, no matter where it occurred If man will only realise that it is unmanly to obey laws that are unjust, no man's tyranny will enslave him This is the key to self-rule or home rule We cease to cooperate with our rulers, when they displease us . It was direct action in Champaran which removed an age-long grievance. A meek submission, when one is chafing under a disability or a grievance which one would gladly see removed, not only does not make

On March 12, 1930, Gandhi set out from Sabarmati with 78 followers on his famous Dandi march He covered the 241-mile distance in 24 days, addressing huge gatherings on the way On April 6, 1930 he broke the salt law,

for unity, but makes the weak party acid, angry and prepares him for an opportunity to explode By allying myself with the weak party, by teaching him direct, firm, but harmless action, I make him feel strong and capable of defying the physical might. . . . He feels braced for the struggle, regains confidence in himself and knowing that the remedy lies with himself, ceases to harbour the spirit of revenge and learns to be satisfied with a redress of the wrong he is seeking to remedy . . . Whilst a *satyagrahi* never yields to panic or hesitancy, neither does he think of humiliating the other party, of reducing it to abject surrender He may not swerve from the path of justice and may not dictate impossible terms. He may not pitch his demands too high, neither may he pitch them too low.

– *MAHATMA GANDHI*

Regd. No. D(D)-15

FROM TRUTH TO TRUTH

The life of the millions is my politics, from which I dare not free myself without denying my life work and God That my politics may take a different turn (after August 15, 1947) is quite possible. But that will be determined by circumstances I have said that a man who wants to be good and do good in all circumstances must not hold power.. . The poor sisters of Orissa have no *saris;* they are in rags. But they have not lost all sense of decency, but I assure you we have. We are naked in spite of our clothing, and they are clothed in spite of nakedness It is because of this that I wander from place to place, I humour my people, I humour my American friends... .. My strength lies in my asking people to do nothing that I have not tried repeatedly in my own life.... The voice within tells me, "You have to stand against the whole world although you have to stand alone. You have to stare in the face the whole world although the world may look at you with blood-shot eyes Do not fear. Trust the little voice residing within your heart It says: "Forget friends, wife and all but testify to that for which you have lived and for which you have to die"......If Gandhism is another name for sectarianism, it deserves to be destroyed. If I were to know, after my death, that what I stood for had degenerated into sectarianism, I should be deeply pained. ... My aim is not to be consistent with my previous statements on a given question, but to be consistent with truth as it may present itself to me at a given moment. The result has been that I have grown from truth to truth .... What I have done will endure, not what I have said or written...... After I am gone no single person will be able completely to represent me But a little bit of me will live in many of you If each puts the cause first and himself last, the vacuum will, to a large extent, be filled .. Fearlessness is the first requisite of spirituality. Cowards can never be moral.. ... Where there is fear, there is no religion

—Mahatma Gandhi

Uncanny Prescience

Less than ten days before his martyrdom, Mahatma Gandhi said .

"If I die of a lingering illness, nay even by as much as a boil or a pimple, it will be your duty to proclaim to the world, even at the risk of making people angry with you, that I was not the man of God that I claimed to be. If you do that, it will give my spirit peace. Note down this also that if someone were to end my life by putting a bullet through me, as someone tried to do with a bomb the other day, and I met his bullet without a groan, and breathed my last taking God's name, then alone would I have made good my claim "

Printed at Universal Advertisers (The Unitiser Press) E/2, Jhandewalan Extn., New Delhi-110055 and

SCHUMACHER IS DEAD

Small is Beautiful

"The importance of technological choice is gradually entering the consciousness of economists and development planners. There are four stages. The first stage has been laughter and scornful rejection of anyone who talked about this. The second stage has now been reached and people give lip service to it, but no action follows and the drift continues. The third stage would be active work in the mobilisation of the knowledge of this technological choice ; and the fourth stage will then be the practical application. It is a long road, but I do not wish to hide the fact that there are political possibilities of going straight to the fourth stage. If there is a political ideology that sees development as being about people, then one can immediately employ the ingenuity of hundreds of millions of people and go straight to the fourth stage. There are indeed some countries which are going straight to the fourth stage . . .

"The virtues of a massive public works programme for job creation have often been extolled . . .

"Only one must not be blocked by being too damn clever about it. We are always having all sorts of clever ideas about optimising something before it even exists. I think the stupid man who says 'something is better than nothing' is much more intelligent than the clever chap who will not touch anything unless it is optimal . . .

"I should like to remind you that the Taj Mahal was built without electricity, cement and steel and that all the cathedrals of Europe were built without them. . . It is a fixation in the mind, that unless you can have the latest you can't do anything at all, and this is the thing that has to be overcome."

ONE STEP TO DESPAIR

The Wit of Schumacher

BEING MISUNDERSTOOD

People always think I want to take their technological toys away. I have no such intention. I was talking in Germany and had an audience, and after my talk I walked out. Behind me was an enraged couple and the woman said, "What stupid stuff this guy was talking! Do you know he arrived by airplane? How could he come by airplane if we only had intermediate technology?" Well this was too much for me, and with the utmost politeness I turned around and said "Madam, in that case there would have been no need for me to come."

SHOEMAKERS

I can speak from authority on the subject of making technology fit because my name is that of a shoemaker. It is not good enough to make excellent shoes. It is necessary that the shoes fit. It is not good enough to make them bigger and bigger. One has to consider the needs of the little people and that we have totally forgotten.

The task is not to abolish the big steel works. They will abolish themselves. The dinosaurs collapsed under their own weight. The task is to fill the middle area of technology so that we have shoes for every size of foot.

COMMUNIST COUNTRIES

This fascination with things — the bigger the better — has little to do with communism and capitalism. It is a universal trait of all civilisation. Not so long ago I was in East Germany and they were giving a very pungent description of what they thought about Western economics, and at one point, one of them said: "The Western economics are like an express train moving at an ever-increasing speed straight into an abyss. But we shall overtake them."

BIG CITIES

Ninety-eight per cent of the United States' total area is inhabited by eight per cent of the population. That is an extraordinary thing, but not at all confined to the U.S. It is everywhere the same. Thus in the over-industrialised countries like Britain and the United States, big problems can only be solved in the rural areas.

In an overgrown thing like London, Tokyo or New York you can ameliorate things. But they are monstrosities and cannot survive. So what must people do to get out of it? There is enough room. So we need to develop the small town and they cannot develop unless there is appropriate technology.

WORKING WITH YOUR HANDS

People ask me how we got into such a technological predicament. I put a lot down to the snobbishness of our education — a special kind of snobbishness namely — to work with the brain is more worthy than to work with our hands. St. Thomas Aquinas said "The human being is a being of brain and hands." [illegible] and we cultivate a [illegible] don't keep in touch with reality. It comes when you don't work with your hands anymore that you don't have to think small and [illegible] your brain run wild.

THINKING SMALL AT HOME

My passion has always been for more at home self-sufficient production. I grow practically all the food for the family. We're vegetarians now, and that was a big change in life style. It's a pretty large household and I [illegible] not my wife mill the flour and bake the bread.

ECONOMISTS

They haven't a clue about the truth and therefore the world goes on while economists make the [illegible] street organ music which has nothing to do with what's going on.

TOPSY-TURVY OF EAST AND WEST

The whole pattern is kaput. The West lives its error and the East sleeps over its truths. Everything has become topsy-turvy. California has orientalised itself. Japan has westernised itself. There are more Zen Buddhists in California and more out-and-out materialists in Japan.

METAPHYSICAL CONFUSION

The real social disease today is a metaphysical confusion. The materialists spread the myth that there are eternal mysteries and nobody can find the answers. That's absolute rubbish. If you have been thoughtful you can't fall for claptrap like saying "We must have growth." Growth is a purely quantitative term and you can't [illegible] growth is good or bad.

HIGH PRICED CAPITAL

Technology has become so [illegible] that most of us are ex[illegible] Henry Ford started some [illegible] [illegible] capital [illegible] [illegible] the amount of [illegible] [illegible]

MODERN TECHNOLOGY

Things have become so big, complicated, so costly and so [illegible] that it's only the biggest and strongest that can carry the technology and hence so much of business is made by multinational corporations. And it's no use complaining about multinational corporations and at the same time [illegible] that we are developing technology that only multinational corporations are big enough and rich enough [illegible]

SCIENCE AND RELIGION

The scientists' zero is at lowest possible level and all they see is the outward appearance. [illegible] thinkers have taken the time [illegible] to learn from the latest scientific discoveries but from the tradition[illegible] wisdom of mankind.

YOJANA

Volume XXI Number 18

New Delhi

16 October, 1977

24 Asvina, 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan but is not restricted to expressing the official point of view.

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Editorial Office: Yojana Bhavan, Parliament Street, New Delhi-110001. **Telegraphic Address:** Yojana, New Delhi, **Telephones:** 383655, 387910, 385481, extensions 402 and 420, **Circulation:** Business Manager, Publications Division, Patiala House, New Delhi-110001.

Subscription : Annual—Rs. 18. Two Years—Rs. 30. Three years—Rs. 42. Foreign Subscriptions : One year—£2.70 or $5.50. Two years—£4.50 or $9.00. Three years—£6·30 or $12.50. Single copy—Twelve pennies or $0.25.

How art Thou fallen
from Heaven,
Oh Lucifer
Son of Morning !

One Step to Despair

THE SIGNIFICANCE of the warning uttered by . Shri Morarji Desai about the disastrous consequenc short run, of the failure of the Janata Party is very like missed in the wilderness that is India's present day politic

There may be some merit in the statement that the pa instrument of performance, not a showpiece of unity. Di may not be such a bad thing but the trouble in Indian argument is that the issues debated upon often are of li sequence to the mass of the people.

It has been a fashion for long years now for political to assume postures of one kind or the other. Very few can say with sincerity that they themselves are either or clear about how one can change "this sorry scheme c entire".

Whatever be the performance of the government, organisational wing of the Janata party claim that it fashioned into an instrument of performance ? Quite ap the fact that the democratic forums of a national party nowhere round the corner and that decisions and discussi all the marks of an earlier discredited system of coterie the party's failure to turn to good and ethical purpose surge of people's enthusiasm is a tragedy of the first ma If anything has been done to convert the unbounded ene the common people into an avalanche of a crusading b a new social order, it has been obviously kept a closely-secret. A nation, after renewing its commitment to a byg represented by a phenomenon called Gandhi, is now stup a great betrayal of faith. Its noble people move about in condition, bewildered, rudderless, disenchanted and not y pletely desperate. But that is only one step away.

Nobody need be greatly worried about the future of o or the other. Not many tears need be shed if one party way of another. What, however, should and does cause and unease among a broad spectrum of honest public o an anguish reflected in JP's warning—is that the choice the country shows every sign of becoming one betwee and Charybdis, between disaster and calamity.

The polemics of the leading lights of political part the people by like "an idle wind" which they "respe These leaders can argue to their heart's delight and cry till the cows come home.

THE PEOPLE's real dilemma is: where do we g here ? With sections of the opposition marching f opportunism to the next, with their star performers growin untruth to untruth", with the "mafia" summoning up courage to defy, challenge and demonstrate, with the Jana afraid to strike and unwilling to act the setting is ide great degeneration of public life flowing from a general despair.

Add to this the combined left refusing to be releva unregenerate civil service and professional class clinging notions, petty self-interest, pointification and clamour fo and privilege, a working class without a social commit trade union leadership of infinite irresponsibility and a

Is anyone in this country—in the political parties, among the middle and working classes, in business and industry—losing any sleep over this state of affairs?

This is the question implied in JP's and Shri Desai's warning. The splintered opposition, for all its new found love of the meek and the down-trodden, is a grand hypocrisy where it is not a huge joke. The avenging angel, for all the talk of an ancestor's vision, remains, as always, a fraud and a mountebank. It is in this context that there is a general unease about the drift of the party in power. What does the morrow have in store?

FOR THIRTY years, this country was cheated of its rights and the people of their sovereignty The days of March roused hopes of a new, challenging and exciting world. What has the triumphant party done to sustain these hopes and lead this nation from one adventure to the next adventure? On the other hand, have not the innocent people been led from disenchantment to disillusionment and from disillusionment to stupefaction?

It is not a single act of omission or commission It is not merely that someone is less of a statesman than of a bureaucrat, another has little to show for his sincerity save his innocence or a third wishes to appear to be brave without the basic quality of intellectual and moral discipline. It is not the procession of people going abroad at the drop of the hat leaving an arduous task pending and petrified. It is not the indecision about industrial policy and confusion over multi-nationals, nor the inability to evolve a national consensus on a worthwhile education policy or on overcoming a continuing social inequity. It is not the lethargy in evolving a meaningful policy of austerity. of a halt to this mad competition in urban pampering, of a rational low incomes, low wages, low profits and low prices policy based on a revival of the spirit of the Gandhi era, the spirit of service and sacrifice. Nor is it the funny business of peripathetic men making one pronouncement of intent to be followed by a counsel of patience.

All this may add up to a terrible indictment One can go on and on. Where is this rural industrialisation and when are we starting on this road to the promised land? What exactly are the plans to provide drinking water to all the villages? Where is the sign of the massive scheme of water management? When are we going to use our food reserves as the basis of a wage system in the short run for millions of people to be employed on worthwhile schemes? When is one going to look at the state of our hospitals? When is one going to end the ostentation and tyranny of an administrative system unsuited even to a colonial regime? How are we going to enthuse our doctors, engineers, educationists and the rest to build a new nation without getting involved in a silly stampede for post and positions and emoluments? What is our schooling system for the villages and why can we not establish a hundred thousand schools in six months' time? Are there not men and women of dedication, talent and purpose in this country? Where is the scheme to involve them in an enterprise of endless possibilities?

Is there any evidence anywhere of any group of people—in government, political structure or the professional system—meeting, discussing, planning and acting? Is there a sense of confidence in the country that somewhere, someone is involved in the serious business of leading this country forward into ever-widening thought and action?

TO REPEAT, the various components of action and inaction add up to terrible indictment. Neither time and circumstance nor the lack of it can answer this indictment. But the bigger accusation is that in less than no time, the people have been reckoned without. They do no longer seem to be a decisive commodity in the politics of this land. They have been taken for a ride and, what is worse, they are being taken for granted. The operators seem to have taken over. There is a creeping, uneasy feeling that Indian political development is again becoming an exercise in management and administration What seems to be forgotten is that democracy and development are something more than governance, efficiency or inept, honest or deceitful, humble or arrogant These are essentially political processes to be founded on people's involvement in the tasks of building a new nation from the debris of shattered hopes and aspirations

The millenium may not arrive yet. But endeavour, great endeavour, should be here and now. It is the prospect of involving the people, enabling them to move from an upsurge of hope to an upheaval of anticipation and then to a mass movement of meaningful democracy anchored to human beings and not to soulless institutions—it is this which invested the March election with a strange glow Was the significance of this mandate too big for the maundering politicians to grasp?

The days of March were followed by the anxious days of April and then came the great gathering in the Hall of Nations In the manner of that momentous congregation and in the choice of the new leadership was seen a new loyalty to the exuberance of youth, to humility of dedication and to the fervour of intellectual integrity And India seemed to be turning away from the era of cabalistic politics and returning to the almost forgotten era of people's politics.

IT IS THE shattering of this hope and expectation that makes the national scene so dreary and desolate Men who swear by Lohia seem to have forgotten the doctor's mission and purpose. Others seem to have travelled far from the idealism of their involvement in the JP movement, in the struggle against a treasonable emergency and in the shared glory of sacrifice. The heirs to the Congress of an earlier period seem to have forsaken their faith in mass action.

What is the remedy? The "pseudo" idealogues of the right and the left are unlikely to be of great help The party functionaries and the so-called representatives of the people cannot be weaned away from the time honoured game of ante-room, backstage intrigue, appeals from the national leadership notwithstanding

THIS IS WHERE Mahatma Gandhi comes in The secret of his magic lay in transforming overnight the national scene of despair into an excitement of striving by giving the people themselves an opportunity to act Thousands of social workers were involved in fighting social evils of one kind or another in the process receiving lathi blows as much from the police as from the goondas Thousands of others young and old, were equally involved in different forms of constructive endeavour And finally, Gandhi gave us this great weapon of non-cooperation. Even in rags and supposed bondage, the people lived in an exciting world of adventure

This is the path for the broad spectrum of honest and dedicated political cadres in this country, what ever their party or ideology. Let the motley crowd of politicians indulge their treasons, stratagems and spoils. Let the decadent bureacuracy and sermonising intelligentsia experiment with their pet exercises of

industrialists develop their machinations of blackmail, bribe and threat. Let the trade unionists feather their nests with their brave battles for bonus and dearness allowance. Let "the mealy-mouthed, leathery-faced, high-binding, hornswoggling" political adventurers continue with the skulduggery of lobbying for multinationals behind the facade of patriotic self-reliance.

There is yet a wide field of action. Let us not adopt any posture of self-righteousness, of a Savanorala rebuking the sins of the people. The time, circumstance and the place are here with us to launch a mass movement of non cooperation with social iniquity, political cant, intellectual dishonesty, moral indifference, business hypocrisy, trade union tyranny and elite privilege—in short a movement of, for and by the masses of deprived people. In this movement there is a place for Gandhians, a cross section of class and the non-conformist intelligentsia. This i the way of fighting for the down-trodden, harijans a well as others, this is the way of fighting for a nev social order. Let all men unite for unleasing thi mass movement—a process of millions on the move.

IT IS SUCH a movement, not mere expectation from the rulers nor exercises in social philo sophy, that will dispel the gloom. This is the tim to unite on a broad national platform of compellin action. Out of this will emerge the time to split o the basis of ideology. But when that time comes, th people will already have built enough strength t face every danger to their polity, their heritage an their sovereignty.

This is the time to act. Tomorrow may be to late.

The Two Hundred Days that Did Not Shake the World

"TEN days that shook the world". That was an apt description of how Lenin went about the task of transforming the national mood.

Tagore wrote. "They (the Soviet leadership) have no time to lose, because the whole world is their opponent, they have to prove without delay that what they want is not wrong, and that it is no fraud"

Nehru wrote "They had time, even on the fourth day of the Revolution, with firing going on in the streets, to establish the eight-hour day for the workers and formulate their policy for a system of popular education".

It was not merely the speed but the content of the new order which thrilled Tagore. He said: "What has pleased me most here is the complete disappearance of the vulgar conceit of wealth For this reason alone, the self-respect of the people has been restored, peasants and workers have all shaken off the load of disrespect and raised their head How wonderfully easy has become man's relations with his fellows!"

Tagore wrote more than ten years after the Soviet Revolution He said, "If I had not seen with my own eyes, I could never have believed that, even within ten years' time, lakhs of people, sunk in ignorance and humiliation, could not only be made literate but given the dignity of manhood".

In the context of the history of those times, the poet said, "A decade or two is determined to prevail against a millenium".

It would be much less than charitable to expect that the new government in India would accomplish the task of prevailing against a millenium in just six months. Criticism on this count is plain malice.

A FURTHER factor which goes very much in Shri Desai's favour is that, though the March transformation was unique in the context in which that transformation took place, there is no parallel between a revolution which swept away an existing legality and a mandate within a prevailing system Neither the structure of social relationships, political institutions and administrative hierarchies nor the premise upon which our constitutional polity is based was disturbed by the electoral process.

"This is a limiting factor. The situation in 1947 was different but the tragedy then was that with freedom came partition, the great exodus, the Kashmir war and the states problem. These were built into the structure of the independence scheme. Partition itself was hastily conceived and the resultant chaos could not be averted. In the event, the energies of the leadership were concentrated on creating some order. The crisis brought out the best in India's services, civil and military and the bureaucratic idea flourished at the cost of the political idea The swing to stability brought with it the swing to conservatism, the handmaid of consolidation.

Here was the incipient attack on Gandhi, though perhaps fortuitous and motiveless. The mass idea was giving way to the elite idea.

One might well ask why a man, charmed by Lenin's resolve amidst an even greater crisis to fulfil the goals of the Revolution, should have done less. The answer probably, is that Nehru, unlike Gandhi or Lenin, had no political philosophy of his own. There was no relationship between whatever ideas he had and the institutions he created. Each one of his ideas—political democracy, economic planning, secularism independent foreign policy, social transformation—stood apart. They did not flow from a single formulation.

THUS THE CONSTITUENT Assembly was a body dominated by experts. The Constitution itself was an exercise in grandeur; the formalisation of the people's rights was eminently the projection of the urban liberal concept. The periphery of the people's idea flourished and the core languished. Parliamentary democracy was shackled by institutionalism. Planning, secularism, minority rights, social reform education—everything was reduced to form at the cost of the substance and became a playground of bureaucrats, not the crucible of ideas.

If one ripped Nehru's state of its facade and the constitution of its mask of high purpose, one would see them to be essentially anti-people. The Constitution was a perfect document for a perfect law and order state, for a polity of "management". It was a paradise for the decadent urban class, with a pro-

iis class. The vote did not redeem the people be-ause it was subject to the inviolate form of State ructure which ensured that the people were not overeign even in name.

The first Republic (is it not time for a second Re-ublic?) was not a noble design for a decade or two r even three to "prevail against a millenium".

The events of March made no difference to this yrannical legality. To this extent there could be ome excuse for the apparent helplessness of the new overnment. But the manifesto of the Janata Party, ot a very revolutionary document perhaps, at least eld out hopes of a radical new thrust and direction o our polity. Two tasks were promised—one to re-rganise our political, economic, social and cultural tructure on the Gandhian model and the second, uickly to undertake certain enterprises of great "pith nd moment" even without waiting for this reorgani-ation.

Two hundred days cannot prevail against three de-ades, let alone a millenium. But they were sufficient o start the long march towards the new order. If en days could shake the world, two hundred days ould at least have saved the people from a near total isenchantment. On the other hand, one increasingly ets the uneasy feeling that the structure of the State, e styles of administration and the tyranny of system night get further strengthened. If Lenin was in a urry because of an international conspiracy, Shri Desai has to be as much in a hurry because of an ncipient national conspiracy. Tragically he does not ppear to realise that time is very likely to be against im.

THE REBEL in India, it would seem, on his accession to power, dramatically changes his ttitudes to the symbols and forms of the estab-shment. What was blasphemy, overnight, becomes e gospel.

If the grandeur and nobility of the era symbolised y the toothless friar vanished in next to no time when his "political heir" found new virtues in the egacy of the British establishment, the fervour for lemental change which, we were led to expect, was ound the corner after the second "revolution" in March 1977, seems to have disappeared even faster han in August 1947. Ministers moved into bungalows, ournalists came into their own not as tribunes of the eople but as peddlers of influence and recipients of atronage, the civil servants (are they servants or nasters?) blossomed from servility to arrogance, the usinessmen (called by a rebel-turned-Minister as rats") were happy that once again business was as sual, the trade unionists, cowardly in crisis, resumed heir pastime of lunch-hour and street corner "in-uilabs", and the professors, emerging from the sanc-uary of acquiescence, began telling one and all where hings went wrong.

WHAT IS IT that causes such wild despair all round today? Why are men desolate? Whence s the gloom? Is it prices? Is it crime? Is it the ontinuing assault on the self-respect of men whom Gandhi called "Sons of God"? Is it the repeated nstances of police firing at the first provocation?

These may have contributed their share to the gene-ral mood of helplessness which has gripped the coun-ry. But a more basic explanation is to be found in the fact that the new dispensation has given little evi-dence of any great eagerness to do away with any or all of what the old dispensation symbolised in the

ministration and governance remain. The lobbies and operators are either doing roaring business or at least give the appearance of doing so. Decisions are taken and handed down without anyone knowing the why and how of them. Projects continue to be ceremonious-ly inaugurated. Ministers go abroad to deliver a series of lectures keeping the serious and arduous business of government pending. There is a competition to be seen in the company of "progressives" or "saints". Image-building is again good business having enough patrons. And men who braved and stood the ground are no longer wanted; and as in Jawaharlal's days the "solid" and "dependent" "steel frame" is preferred to a whole generation of men "tried in the furnace". The criminal accomplices of another era "manage" to stay on with a good word from one important person or another more important person.

There is leisureliness in high places, unworthy cau-tion, much bombast and less humility. Will all this be reversed? There is no sign of this. The battles within the ruling party or the main opposition are not based on any ethos or idea. There is jockeying and bargaining, there is no real adventure or excitement of intellectual challenge and response.

THERE IS GENERAL loss of faith. Basically, this stems from insufficient understanding, by everyone who is some one in politics, of the nature and dimen-sion of the transformation which took place in March. This was no ordinary election. It was not only party which won, nor another person who was thrown out. It was a unique demonstration, in many ways reminis-cent of the advent of the Gandhi era, of the nobility of a people roused from three decades of torpor by the trauma of nineteen months. And that nobility, which burgeoned into a swelling opinion against ini-quity, contumely and paternalism of a decaying politi-cal system, like an avalanche, swept the tinsels before it.

What remains now to remind us of that national re-surgence? Very little indeed! A people in noble rage threw off a chafing yoke only to find themselves again shackled by the very system of governance which they rebelled against. Their energies spent in battle, they now are dazed by the swiftness of a perfidy far worse than this country witnessed in the declining years of the momentum of the Gandhi era.

This is the cause of the sullenness, despair, anger, impatience and a general mood of disenchantment. All of us will be living in a fool's paradise if we think that a people roused can be kept in check for long. And let all concerned understand here and now that if India's political process is once again sought to be reduced to an exercise in administrative cleverness, sectarian gi-mmickry or polemical arcobatics, the star performers in this drama of deceit will be swept off the stage by the onrush of surging popular disgust.

THE SITUATION demands not gradualism but the ending of a foul system at one fell stroke. Congressmen hoping to gain from Janata Party inde-cisiveness and opportunism seem to have a very poor view of the intellectual power and ability to act of our unlettered masses. Trade unionists hoping to feather their nests by recourse to unethical populism in the place of developing a serious working class par-tisanship with the mass of deprived people will soon find themselves left by the wayside. The professional in-telligentsia hoping to strengthen their parasitical exist-ence by getting close to whoever is in power will soon be finding themselves in the tumbrils along with the other tormentors of the people. Businessmen and in-

dustrialists hoping to add to their pile by peddling their influence and raising a hue and cry about growth, incentives, concessions and collaboration will soon be caught by a storm, not even knowing what it was that hit them. Student activists, who, after demonstrating an unworthy cowardice during the days of tyranny, now are in the streets trying to prove their heroism, will soon be overtaken by a superior force and it will be too late for them to realise the cost of a marauding orgy devoid of intellectual and moral courage.

And what about our ministers and their minions? Even as they are engaged in their leisurely councils over lunch and dinner, in between their sermonising, touring and quarrelling, they are being insulted from the gathering revolt by the same kind of toadies and hangers-on as have always abounded in the lawns of their bungalows and corridors of the secretariat.

IS THERE anyone in the broad spectrum of social, political and cultural leadership who has understood the significance of the gathering popular disenchantment with the state of public life and the system of governance? There are the outward forms of consultation and confrontation without a serious effort for a national consensus on elementary honesty. Why do our leaders have to drag in Gandhi in defence of a brazen competition for power and of their apathy to moral issues matched by an absence of spiritual humility?

There is much talk of administrative reform, of police reform, of educational reform, of electoral reform. Yet there is little to enthuse the people that anything worthwhile will take place. All aspects of public and social administration are marked by a destitution of spiritual fervour. And we are sometimes told that there is nothing very wrong basically and what is needed is only a little touching up here and there. Herein is the first sign of the rot. The "rebels" have already started learning that the establishment is not the goliath it was made out to be.

A GREAT opportunity for the Gandhian alternative is already slipping away. The country seems condemned to a violent upheaval, out of which will emerge another and worse despotism. Leaders of all political parties seem to have lost even the ability to feel the situation. If they do not come together on a common idea platform to summarise the experiences of the people for the people, to revolutionise politics and governance and express that revolution in the form of an avalanche of decisions that will invest this great country with an ecstasy of pride and purpose, the forces of incoherent violence are bound to take over. Decrees must flow from the office of the Prime Minister in tune with the traditions of Gandhi era and with the democratic aspirations of the people.

The manner of uniting is more important than the fact of sticking together. Appeals for party unity are often accompanied by advice of sorts given by good samaritans that there should be no open criticism of the leadership. This is in conflict with earlier positions about the need for party men to speak out.

The argument that the affairs of the major political parties are a preserve of their inner councils has seen its day and will wash no longer. That is why the postures of outraged political morality adopted by them in regard to investigations of the management of their funds have convinced nobody.

Not merely this. It is not clear yet which part of Gandhi is being had in mind when many people are assuring themselves and others of their loyalty to his ideas. But it is innocence or worse to speak of Gandhi and think of secret politics. For the saint of Sabarmati, "the politics of the millions is my politics". And that politics cannot be decided by twenty men in authority—be it in government or in a party.

THOSE IN POWER at a given point of time would do well to remember Acton's truism (no less true because it is a truism) that power corrupts, and Gandhi's dictum that the only way of checking abuse is the dynamic vigilance of the people. Otherwise, their talk of open society will be worse than hollow.

Nobody is seriously suggesting that the problems of this country can be solved overnight. It is going to take years. And the generous people of this land will be prepared to wait, provided they know that they are not held in tutelage but are masters of their destiny. It is this sense of participation which informed the political, social, cultural and economic philosophy of one of the greatest men of all times—Mahatma Gandhi.

How was Gandhi able to infuse in the life of our nation a new spirit, a sense of fulfilment, even while the people were steeped in poverty and squalor? He made them vibrant with a sense of freedom and made them feel that this sense of being free is the basis of all other rights and duties. He made Motilal give up his practice and made millions take to khadi. Sacrifice was badge of honour, palace an object of derision. Service among the Harijans was a privilege, membership of elite society a subject for caricature. There was the strange spectacle of men moving in the streets with a *takli* in their hand, of women being in the forefront of social and political battles, of *satyagrahis* braving physical assault while picketing liquor shops, of legislators boycotting councils, lawyers boycotting law courts, of graduates boycotting convocations—in fact a spectacle of a whole nation on the move. There was hardly a village which was left untouched by the Gandhi movement, hardly a tea shop without some symbol of that movement.

HOW DID this transformation take place? Gandhi, said Nehru in an interview with a foreign correspondent, was undoubtedly the greatest revolutionary of our times, because he moved the masses.

Was it just the work of a messiah? Despite the messianic proportion of the man himself, he wrought the miracles by very simple devices. He always used an idiom which the people understood. Despite the might of his intellectual power, he did not make intellectual rationalisation the basis of his social movement. He insisted on a strict code of uniformity of sacrifice, of morality. He lived even as he preached. He gave every soldier of freedom's battle a unique individuality, a feeling that he was no less important than the Mahatma himself.

Above all, he gave the non-cooperation idea—individual courage and collective honesty.

NOBODY HAS any business to talk of Gandhi unless he is prepared to accept the concept of an open rebellion which, in our context, would also imply open government. Secrecy, the prudery of a special morality and conduct code for government servants, the closed system of administrative hierarchy, the high cost of governance—all this has little place in the India of today. They must be swept away by a flood of decisions. Commissions and councils can do no more than tinker with a system, rotten to the core.

Let there be a unity of resolve and sacrifice, of purpose and service, not a coalition of interests. Let there be an open controversy based on sincerity instead of secret intrigue eroding the ethical will.

And let not unworthy caution and the counsel of

now. Once there is evidence of this will, the mood of the country will be transformed from despair, sullen anger and senseless violence to enthusiasm, participation and challenge.

The Harijan Problem

THE CONGRESS Party's defence of the tempo of its campaign in respect of treatment of Harijans can well be that it is permissible politics. The communists have also raised this matter and there is some evidence of a determined bid to organise resistance against local tyrannies. JP has mused whether a confrontation on class lines can be avoided at all.

The prime minister has been forthright in his letter to Shri Chavan. Not even the leader of the opposition will disagree with his statement that the cause of the weaker sections and the human misery involved are too important and serious to be made the subject of polemical duels within Parliament or elsewhere Nor can the impression be completely avoided that there is a concerted effort to project government generally and the home minister particularly in a certain light. The former prime Minister's references to the plight of the Harijans have not added to the credibility of the Congress Party's seriousness in this matter.

With all the opportunism apparent in many of the postures adopted by one or the other, it is good that the debate has taken place and will continue. The vigour of the public discussion should be enough rebuff to the mischievous theory that the downtrodden have no stake in open society. Whatever the motive, the opposition has done well in rousing public opinion against a continuing iniquity.

Part of the present problem, as Shri Desai has said, is the casual manner in which land allotment was done under the much-advertised 20-point programme—another proof of the insincerity of much that was done during the emergency. Certain administrative steps have now been taken and the Chief Ministers—including those not belonging to the ruling party at the centre—are very much in the picture.

Shri Desai and Shri Charan Singh, have, perhaps, been a little tardy in another respect They should have conferred with leaders of various parties individually and collectively to find a common national approach to this problem, so that a sound policy is not frustrated by political opportunism. Even now it is not too late to do this.

The Prime Minister rightly, is not impressed with a statistical approach. It is a national shame that incidents of ill-treatment of Harijans should be occurring in a country which has been among the first to raise the banner against racial arrogance elsewhere.

One aspect of the matter has not been adequately stressed. There is a general feeling that cases against the oppressors are not registered and the Harijans, after having suffered, are falsely implicated. Some confidence needs to be restored in the justness of the law enforcement machinery.

The Naxalites have been almost the only political group which have tried to organise the weaker sections for resistance. Ultimately the problem—at least the social aspect of it can be solved only by building the strength of the people to give battle to caste tyranny. It will be a good idea if all the political parties agree to organise the weaker sections for a movement of non-cooperation with the tyrants.

the problem. The landless are not exclusively Harijans; nor are the small farmers always very much above the poverty line. There is no escape from a massive employment programme based, in the first instance, on essential construction. Simultaneously a very quick school expansion scheme will have to be undertaken. Some kind of urban culture (as Gandhiji envisaged) has to be brought about quickly in the villages. This would mean that various kinds of professional intelligentsia have to be found for useful work in the villages. One does not see why the central government should not insist that all entrants to its organised services should start their career with a ten-year tenure in the villages.

Much of this will depend on the speed with which a water management system covering every village is evolved. Service is a good motto but a harsh existence is not a necessary badge of that service.

Police Reform

IN THE last few weeks, the Home Minister has made some policy announcements which do indicate serious thinking about police reform. Unfortunately reports of many police commissions have been gathering dust and the police system is largely governed by a dispensation of over a hundred years ago. Since the advent of freedom, the police image, far from improving, deteriorated rapidly because of the increasing use of the force for putting down social and political movements. In the last decade, and more particularly immediately before and during the emergency, the police was reduced to the position of a handmaid of political intrigue Intelligence services were grossly misused and "law and order"—a misleading expression—was stressed to the extent that other branches of police function were neglected.

Investigative efficiency having been neglected, third degree methods were freely resorted to, sometimes under political patronage. Ironically a police officer, on trial, pleaded before a court that he should not be placed in police custody because he feared ill treatment.

For all this, our police force consists overwhelmingly of well-meaning personnel, who, given leadership, training and social ethos, can blossom into a fine body of public servants In two speeches, Shri Charan Singh has given indication of his awareness of the good potential in the force.

The Home Minister referred to absence of facilities at police stations. This is only an aspect of a degenerate administrative system in which secretariat offices overflow with carpets, coolers and cushioned chairs, and areas where the administration meets the people lack the minimal facilities.

Part of the problem of the police force is the career self-interest of a bossist service which would not give the policeman the respect that is his due. Anyone who attended the two seminars held by the police service association could not but have been impressed by the calibre of the officers who have chafed for long under the yoke of an aggrandising set of officers. It is good a beginning has been made in Delhi to set matters right.

The London "bobby" is often mentioned in any discussion of public affairs. It will be a good idea if every policeman—officers and others—is obliged, at least in two spells of two or three years each during his service, to do only jobs of generally assisting the

This is the come-back trail

—KAUSHIK

THE PRIMA DONNA appears in the auditorium. Fanfare, powerful lights. The show is on.

"Jail going is a matter of pride" Shri Desai has expressed his gratitude. "But jailing me is not in the national interest". The nation and me!

"Self-reliance is in danger". The rupee devaluation at the World Bank's behest came after the praise of Johnson's peace policy in Vietnam and the agreement on the 300 million dollar U.S. educational fund.

"Jawaharlal Nehru had vision." Ten years ago in Bombay, the AICC heard the statement that Nehru's economic policy was not as acceptable as his foreign policy.

"Where is direction of policy?" The first broadcast in 1966 pronounced the merit of pragmatism. (It was compared to Lenin's NEP)

"We were marching forward". Towards "derailment of democracy"!

"Prices are going up". Inflation is no longer a global phenomenon!

"Where was the need of elections?" Some wisdom indeed, though belated "The March election was my democratic commitment". But then "the Intelligence gave wrong facts and we could not size up the people's mood".

"What is this rolling plan?" Was it not better to have a make-believe plan?

"There is fear". Yes, how else does one explain the strikes and the processions? Would this have happened during the era of "discipline" or would this have been publicised during the golden age of "fearless" journalism?

"Officers are being suspended". Should they not have been rewarded?

"Where is science and technology?" Where indeed? "All kinds of things are being imported" No need, of course to go into detail." But I am not against imports as such". The retreat line.

"My arrest is good for my party". Though not for the nation! Are not the party men against you? "They are not true Congressmen".

"We have personal bickerings. They have ideological debates". What a crime!

"No economic policy yet". Shift to agriculture and small industry? "No, no, they only want to stick to power". Not like me.

"Outside forces were at work". The people did not perhaps go near the ballot box. "There is a tilt towards one power". No further questions, please!

"Where was the caucus? Only now there is no democracy"! Why is everyone allowed to move about freely, talk at will and get fully reported?

"Emergency was only to deal with economic offenders". Did you think it was anything else?

"What do you say about the Delhi floods?" Did this happen during the emergency? Patna? That was nature, Delhi was man-made.

Finally the home coming In local costume. "The knight on a lone charger".

"What I say is not reported". Quite. Oh for the halcyon days of free reporting!

"Emergency produced the Janata Party". "Otherwise there would have been chaos". Was the juxtaposition a coincidence?

"Due process of law, my foot". Releasing people who fought against the emergency! Whoever heard of such a thing?

"Fear and me, what a laugh!" James Cameron to note.

"They are trying to destroy my party". Earlier did they not try to encircle me?

Pathetic? Ignorant? Does not know planning? Planning Commission members vanishing, for they frowned on a toy car?

Don't be silly, you detractors. Come wind, come hail, this is the come-back trail.

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people—for instance, helping a child or an old woman cross the road, taking people to a dispensary, giving them essential information, giving first aid or transmitting a grievance and getting it redressed. This will not only revolutionise his approach to his work but will change people's attitude to the force

Another reform could be to make the functioning of the police force as open as possible. The service rules should be amended to enable the police to participate, to the maximum extent possible in public affairs. Frequent in-service training, good service conditions, greater democratisation and building the public relations system into the structure of the police force are some other possible ways of making the police a humane and effective force

Shri Charan Singh's advice to BSF—a force whose reputation at the moment is not very high—that every officer and jawan act fearlessly and do nothing inhuman or illegal or immoral even on superior command, can be the basis of a new ethos which will liberate the police from the narrow approach of "controlling" and give them a chance of "serving" the people.

A senior police officer has said the police could be disarmed. William Pitt is credited with this idea. There is really no need on most occasions for the police to wield all kinds of weaponry. More effective but less cruel ways of crowd control, statutory commissions to visit jails and to inquire into every case of police firing, clear constitutional prohibition of third degree methods, matched by a great simplification of legal and evidence procedures should all be thought of.

Wages and Income Policy

THE CALL for a wages and incomes policy by six central trade unions has a positive aspect in the sense that note has been taken of the landless labour and the generality of the people outside the organised sector. But these trade unions will have to do better if they are to convince everyone of the seriousness of their concern for those who live below the minimum consumption standards. The one to ten ratio of wages and incomes is possible only if, along with profits, dividends and high incomes in the public and private sectors, working class wages in the organised sector are also kept in check so that resources can be mopped up for a great and rapid increase in job opportunities and for improving the lot of the down-trodden. The insistence on bonus is strangely inconsistent with the concern for the rural poor.

The problem of Indian trade unionism is that it has not developed into an *avant garde* movement for the

people. And very often trade union leadership shows little sign of being other than a vested interest.

However that be, the government has no excuse for delaying the evolution of an incomes policy. This country cannot afford a high wage economy. The sooner government announces a policy of ceiling on incomes in the public and the private sectors, the better. The present ceilings bear no relationship either to the general picture of Indian destitution or to the compelling needs of attracting talent. Further, without a drastic scaling down of incomes in the higher levels and a matching abolition of many of the office comforts, privileges and the rest that go with the high incomes, government's sincerity will be suspected in the eyes of the people generally and the working class in particular.

Workers' Participation in Management

CONTRARY TO THE general belief, the opposition to the concept of workers' participation in management came in the UK from the more extreme of the trade unions. Their fear is that the working class options will be limited if management decisions are taken by, among others, their own representatives. The high degree of efficiency of the trade union movement in that country makes the task of participation easy, in the sense that the functional concept of management is not likely to be diluted by the active association up to the board level of a trade union representative or representatives. The Bullock Committee report has raised a vigorous debate in the U.K.

Indian thinking on this subject has been far from clear so far and it is doubtful whether the appointment of an 18-member committee is going to make matters clearer. Not enough groundwork has been done. This apart, trade union development in India, even where such development is positive, responsible and informed, is very uneven. However, the committee's work will give another opportunity of a basic discussion of a vital subject.

There is nothing ideological about workers' participation. It is a functional idea with immense possibilities.

Both the question of equity holdings and the trusteeship idea have been included in the terms of reference. One does not know if the labour minister has kept in mind Gandhi's diagnosis that labour often fails because it wants to become capitalist itself. Proletarian revolution or management revolution or the trusteeship idea cannot mean that ownership is only broad-based and this worker-cum-manager-cum-owner-cum-trustee is a privileged citizen in society.

Company Donations

THERE MAY be some merit in the lament of a few businessmen and industrialists that they are being penalised for furnishing information about their contributions to political parties while many others who have effectively concealed such contributions will escape. One hopes that the investigation machinery will be able to bring into the open such secret deals.

A point is likely to be missed in debates of this nature—whether they concern businessmen, bureaucrats, professional classes or politicians. If the general atmosphere of terror is accepted as a blanket extenuation of the most shameful forms of illegality, immorality and cowardice, how are we going to ensure that such terrorism—the stock-in-trade of tyrants, as Gandhi called it—will not be accepted as the easiest method of perpetuating oneself in power? Either the incipient tyrant knows in advance that tyranny will not work because the moral fibre of the different institutions of public life is strong enough to frustrate it or those who are prepared to share in the tyranny by craven acquiescence should know that, as at Nuremberg, retribution will follow as the night the day.

It will be grossly unfair to treat on par those who could not summon up courage and those who actively participated in corruption and tyranny. But then it is equally unfair to expect that only one section of brave men will always resist and invite upon themselves imprisonment, death, torture and worse and others will have the best of both the worlds.

The best thing would be to evolve a system of graded punishment for different categories of people who perpetrated, actively participated in, benefitted from or merely accepted the regime of near fascism. Between these who gave willing information and others who concealed it, there could be a difference. But none should expect to escape the consequence of his share in the infamy.

The tragedy, however, is that so many of the worst culprits seem to be flourishing under the new dispensation. One only hopes that the people will take care of those who are making this possible.

Civil Service Quarrels

SOME RECENT appointments seem to be reviving the inter-service rivalry at the senior levels of the administration. What has been unfortunate in the controversy in the last six or seven years is that the question of administrative reform is often equated with salaries and posts. Undoubtedly these have a great bearing on the efficiency of administration. The runaway aggrandisement in one section leads to mad spree of demand. The culture of the administration also depends on the relative importance given to functional and extra-functional aspects. But there is more to it than merely salaries and posts. When is the government going to change the secretariat system, a wholly inefficient one and certainly not a universal phenomenon? And when is government going to realise that an extra clerk at the booking office or X-ray counter, an extra bench at the police station or a dispensary, a few more nurses and doctors, a few more beds and clinics, should demand a higher priority than the plethora of posts in administrative offices and the attention given to the appurtenances of these offices? The consolation is that even the mightiest officer has to seek the help of a policeman, a booking clerk and, of course, the doctor. Life itself is a great leveller. There does not seem to be any course other than consoling oneself with this thought, unless the people can mount a movement for a new administrative culture.

JAYAPRAKASH

Yusuf Meherally, one of the stalwarts of the freedom struggle and of the socialist movement in India started the Padma Publications and among his books was "LEADERS OF INDIA" written in 1942. Among the nine leaders chosen by Yusuf Meherally for the book was Jayaprakash who was then only 39 years of age. Even thirty five years ago, Meherally wrote : "Today he (Jayaprakash) is one of the guiding spirits of a movement with which the future of the country is inextricably bound up".

Of this man of history, a calumny was spread by the British bureaucracy and Meherally says, "Gandhiji's magnificent reply will indeed remain a remarkable document".

Nehru said on 14-2-1948 "A time will come when Jayaprakash will play a very important part in shaping India's destiny".

Of Jayaprakash's arrest in 1940 and the British Government's calumny against him, Mahatma Gandhi wrote in the **HARIJAN** on 10-3-1940 .

"The arrest of Shri Jayaprakash Narayan is unfortunate. He is no ordinary worker. He is an authority on socialism. It may be said that what he does not know of socialism, nobody else in India does. He has forsaken all for the sake of the deliverance of his country. His industry is tireless. His capacity for ing is not to be excelled. I have said before no it is open to the government to precipitate a if they wish. They have every right to do so. Let be no camouflage. If Jayaprakash is guilty of vic violence should be proved. What the arrest has is to make people believe that the government w force the issue".

How aptly these references by Mahatma Gan the British Raj fitted but another native Raj !

Mahatma Gandhi again wrote in the **HARIJ/** 26-3-1940 :

"It is an irony of fate that Jayaprakash's patr is being penalised. What tens of thousands thin what thousands say in their talk, Jayaprakas said in public. It is true that if his words take and are repeated, the government will be embarr But such embarrassment should set them thinki stead of punishing a patriot for his open think

But like the Maxwells and Tottenhams, the Raj was drunk with power and beyond thinkir

Reproduced here is Yusuf Meherally's ess Jayaprakash taken from Padma Publications' **' DERS OF INDIA"**, written thirty five years ago

YUSUF MEHERALLY

ON A CERTAIN day in 1933 the gates of the Nasik Road Central Prison opened to discharge a tall and distinguished looking youth, on completion of his sentence of imprisonment I have little doubt that when the historian of the future comments on our times he will mark out that event as one of the significant happenings of the year 1933 For, with his release, a new force had emerged in Indian politics. Jayaprakash Narayan came out of prison with an idea, a purpose and a vision. And out of that was born the Congress Socialist Party

His is today one of the most popular and respected names in Indian public life. But few, indeed, know what a magnificent personality it is that passes by the name of Jayaprakash. Fewer still suspect the widely varied experience and adventures that have gone to the making of so fascinating a man.

He has known life at first hand. Perhaps that is the reason why his thinking is so clear. When he reached Amercia to continue his studies, he began his career not in the class-room but on a farm. He arrived in California in October 1922 to find that there were still three months for the University term to begin and he was not rich enough to keep up on his own resources. So he went out to work on a fruit farm Large number of Indians live in California, among whom are a great many Sikhs and Pathans. Jayaprakash joined a Pathan gang whose head, Sher Khan, was a picturesque figure, physically about twice the size of Khan Abdul Gaffar Khan. The non-cooperation movement had deeply stirred Indians all over the world and any new arrival from India was an interesting figure. When it became known that Jayaprakash had left his college to join the non-cooperation movement and had given up his university scholarship as a consequence, there was really no dil for him in finding a job.

THE FRUIT season was then ending and prakash worked hard from morning till amidst grapes, peaches, apricots, almonds. Afte were plucked and sorted out they were treatec lime and then with sulphur. Then they were drie sent to the factory for cleaning. Jayaprakash's was to walk from basket to basket, throwing ou fruit Perhaps that is what he is doing even now- ing out the rotten fruits from the Congress bas

So he worked for ten hours a day and sever in a week with no sundays and no holidays. B wages were attractive, forty cents an hour, worked out to four dollars a day, and at the r exchange prevailing then, fourteen rupees daily young Jayaprakash this appeared a fabulous a and in a month he was able to save eighty d Armed with this fortune he went back to Ber the fruit season having ended, to await the open the University He took a room there and did hi cooking.

One term at California and Jayaprakash was bankrupt! So he went up to Iowa University tuition fees were one-fourth of those at Calif Even to pay for these he worked on a peach f

From Iowa he next got on to Wisconsin Univ Here, a new element entered into his life, an el that was to give a completely different directi his life.

IT WAS here that Jayaprakash's restless found the illumination he was groping He had been perplexed by the prevalence of wealth and grinding poverty, side by side, ev America—the land of opportunity. What w

olution of this riddle ? Why was it that a few had all ie good things, while the vast majority were con-emned to a life of squalor, poverty and ceaseless oil ? A teacher of the University had declared that iere was no solution to the problem of poverty, in ie framework of the capitalist system, and he was nown to be an ardent socialist. Jayaprakash eagerly irned to him and a great attachment grew up between ie two. He started devouring the classics of Marxism nd, before long, but not without a powerful mental ruggle, he became a confirmed socialist His life ow took a new meaning. He gave up the sciences nd turned to a study of economics. His Master's iesis was highly praised and he was considered one f the most brilliant students at his University. He ent from here to New York where he was taken riously ill and was in hospital for several months.

He stayed in America for nearly eight years and udied at five different Universities. He started as a udent of Mathematics, Physics and Chemistry id then devoted years to the study of Biology, Psy-iology, Economics and Sociology. He had several mes interrupted his studies in order to earn enough carry on at his University for a term or two. He ad worked as a farm labourer for ten hours a day, a packer in a jam factory, as a mechanic in an on concern, as a waiter in a restaurant. He had tried is hand as a salesman When, therefore, he returned India in 1929, it was not as a raw student looking rward to a comfortable life, but as one who had en life at close quarters and was fully determined devote himself to public life.

AWAHARLAL NEHRU at once placed him in charge of the Labour Research Department the Indian National Congress. A few months later iyaprakash found himself acting General Secretary the Congress during the civil disobedience move-ent.

History will love to remember his days of imprison-ent in the Nasik jail. Along with him were a large imber of prominent Congress workers. Masani was ere, so was Achut Patwardhan.

These and other friends worked out the blueprints the Congress Socialist Party that was to be. In other ils, likewise, the younger sections of Congressmen, ssatisfied with the decay that had crept into Con-ess politics, felt the need of a more dynamic orien-tion in the outlook and programme of the Congress id had reached socialist conclusions.

Soon after his release, Jayaprakash organised the st session of the all-India Congress Socialist Con-rence at Patna which met under the presidentship Acharya Narendra Dev. The occasion was signi-ant, for the all-India Congress Committee was meet-g at the same time, to call a halt to the programme civil disobedience and to launch out on parliamen-ry activities. It was in the fitness of things that the ft wing also should organise its forces to prevent is drift to the right. Jayaprakash was elected general cretary of the organising committee. In the coming onths he worked ceaselessly, travelling from province province, gathering together the radical elements id setting up Congress socialist groups everywhere. few months later the all-India Congress Socialist irty was formed at Bombay. Jayaprakash continued be the general secretary of the party till he was made a member of the Congress Working Committee at Lucknow. He resigned from the Congress cabinet a few months later, to resume the general secretaryship of the party.

OF THE various leading workers of the Congress Socialist Party, Jayaprakash is most attracted by theory. But he is no dogmatist. His fingers are firmly on the pulse of the people. He dislikes nothing so much as narrow sectarianism. If the Congress Socialist Party is something more than a political party—a powerful movement, with a larger and larger section of the radical elements coming under its ideological influence—not a little of the credit is due to Jayaprakash.

As a writer, Jayaprakash is the master of a style that is at once simple and direct. His book, "Why Socialism ?" has been acclaimed as a masterpiece and is certainly one of the finest books written on Indian affairs. As a speaker he is no orator, but by the sheer force of his sincerity and a thorough grasp of the subject he makes a greater impression than most orators

HE HAS two vices that I can discover. The first is the possession of a magnificent shaving set. With a beaming smile he will tell you that it is the finest in the town. When one has a face as handsome as Jayaprakash's this may be pardoned !

I do not know how to describe the other unless I call it a lack of the time sense—for to call it merely unpunctuality would be prosaic. The fact is that Jayaprakash loves a good discussion, especially with an intelligent opponent, and will miss half a dozen appointments to do so But at these times when he comes late, such genuine misery is written on his face, that he seems to endear himself all the more by his very unpunctuality !

For the best part of three years he has been rotting in prison The memorable hunger-strike at the Deoli detention camp, where Jayaprakash and a number of his fellow detenues undertook an indefinite fast to secure the redress of their grievances, thrilled the whole country. A wave of enthusiasm swept over the entire land. Victory came after 31 days of hunger-strike, but it gravely affected the health of many of these brave comrades. Jayaprakash, whom the bureaucracy had sought to discredit by the publication of a letter, said to be seized from him, emerged from the trial as the hero of Deoli Gandhiji's magnificent reply to the government about the publication of that letter will, indeed, remain a remarkable document.

Jayaprakash is still young. He is scracely thirty-nine and has a fund of knowledge and experience that few people in this country can lay claim to. Gentle as he is, he can be firm and has shown that he has the courage to make big decisions. Above all, it is the human qualities of the man that cast a spell on all those who come near him.

SUCH IS JAYAPRAKASH, unassuming, generous to a fault, honest as the day, working for a glorious tomorrow with the materials of today. This simple peasant lad, born in the tiny village of Sitabdiara in the Saran district of Bihar, saw a tram car for the first time when he was nineteen years old. Today, he is one of the guiding spirits of a movement with which the future of this country is inextricably bound up. □

Social service to be effective has to be rendered without noise. It is best performed when the left hand knoweth not what the right is doing

— Mahatma Gandhi

PROHIBITION

How Gandhiji Tackled the Problem

J. B. KRIPALANI

NOW A DAYS THREE is much talk about prohibition. In our constitution, it is one of the directive principles of state policy. The Janata Party is pledged to bring it about. The Prime Minister wants total prohibition throughout the country within the next four years. His colleagues in the centre and in the states seem to agree with him. It will not, therefore, be out of place here to describe how Gandhiji tackled this problem which, about everything else, he considered a moral one. He had to tackle it without the aid of the law and the corrupt police. I can describe his methods as I saw them being carried out and also as one who participated in the prohibition movement.

Gandhiji never placed before the people an idea which he himself had not put into practice. He was a lifelong teetotaller. Every intending member of his asharm, according to its rules, had to give up the use of intoxicating drinks and drugs. He then induced the biggest and the most respected and patriotic organisation in the country, struggling for the freedom of the motherland, to adopt a resoultion that every member who joined the Indian National Congress should pledge himself to abjure liquor and other intoxicating drugs. This meant that most of those who were in earnest to serve the country had to give up intoxicating drinks and drugs. Their giving up meant generally that their family members, specially the women, also accepted the restriction of prohibition. What a large section of population this meant !

AMONG THE TRIBAL PEOPLE

This was not all. Wherever Gandhiji went, he propagated the idea of prohibition. If it was a tribal area he was visiting, he would invite the heads of the tribes and would induce them to give up the drink habit not only on grounds of economy, but also as a moral duty to themselves and to their families. It was not difficult to convince those poor and innocent people of the benefits they would derive from giving up the drink habit. They had their personal experience to back Gandhiji's advice. He would request them to call a meeting of their fellow tribesmen whom he would then address on the evils of drinks. After that, the tribal leaders would administer a pledge to their followers to give up strong drinks. Gandhiji would so manage all this that it would appear to the tribals that it was their own free decision arrived at by themselves, without any pressure from outside.

In non-tribal areas, Gandhiji would invite the leaders of each community and convert them to his views Then the leaders would call a meeting of their community, where a solemn pledge would be taken against the use of strong drinks.

Gandhiji even encouraged the office-bearers of fashionable clubs in the cities he visited and convince them of the need for abjuring strong drinks. The leaders would then call a meeting of the general body of the members of the club and a resolution would be passed that no strong drinks would be served in the premises of the club.

He would then call special meetings of women and ask them to persuade their menfolk to give up the drink habit In India at least in those days, women of respectable families and of the higher castes rarely drank. Those who did, did so in secret; such was the pressure of public opinion. Gandhiji would also request religious leaders to advise their congregations to give up the drink habit. Generally in India priests do not drink. If any priest was found drinking, his following would dwindle away.

Gandhiji even encouraged the picketing of liquor shops provided it was scrupulously non-violent. For picketing liquor shops, he preferred women to men volunteers.

RELAXATION FOR WORKERS

Gandhiji was alive to the fact that workers, especially those doing hard labour in the field and the factory, did need some relaxation. For this purpose, he suggested that every liquor shop be turned into a well-furnished restaurant. There, the customers could sit at leisurely ease and carry on the gossip of the day over cups of tea and coffee and glasses of various fruit juices, s rups and other soft drinks. The should be self-service in such re taurants; only one or two waite according to the size of the resta rant, need be engaged to clean t tables. In addition to soft drinl sweets and snacks should be provi ed in such restaurants. Radio a good music should also be provi ed . They could be self-supportii Restaurants become costly whe many waiters are engaged. Ho ever, if such restaurants fail to self-supporting they should be su sidised by the local bodies or t state government. In every wa they should be attractive.

These methods to bring abc prohibition were put into practi by Gandhiji under an alien gover ment which would not extend to t reform administrative and leg support. Rather, it put hindranc in the way of the reform and t reformer. Those who picket liquor shops were marched off jails. The authorities rigthly belie ed that a reformed India will be free India.

When there was provincial au nomy in the late thirties, he want the provincial governments to leg late against the evil of intoxican But it was carried out unfortunat by the ordinary police. Howev Gandhi's influence prevailed to large extent.

AFTER ADVENT OF FREEDOM

What did we do when we achie ed Swaraj ? Prohibition laws we not made applicable uniformly in the Indian states. In some stat only a few districts were declar dry. In the rest, use of liquor w permitted. It was not difficult f the rich to cross over and have th daily dose of liquor. The prohibiti laws were executed by the ordinar corrupt police. The rich often fou it convenient to get their liqu through the police The poor had content themselves with some sp rious drink in the name of liqu How often have not many po drinkers been killed by having co sumed some poisonous drink, pas ed off to them as liquor ? Yet, t miscreants who supplied such po son have often not been traced a punished. Such adulteration and sa of liquor does not take place wit out the connivance of the police.

Now that our Prime Minister h promised to see that the whole cou try will go dry within four year may I suggest that the enti emphasis need not be placed on t law ? After all, the laws are enfor ed by the police. During the rece

emergency, the police has not only become more cruel but also more corrupt than before. Steps will have to be taken to introduce a cadre of honest policemen to ensure proper implementation of the prohibition law.

But more than that, steps should be taken for the reform in the light of what Gandhiji did and suggested, when he had neither the legal authority nor police assistance to carry out this reform.

Unique Factors

In my view, India is the fittest country in the world where prohibition by law can succeed. Before some of our people became very rich during the war and through the five-year plans and through the prevalence of the black market, generally the higher caste people among the Hindus did not drink. Liquor was not kept in their houses If anybody wanted to drink, he did so in a hotel or a fashionable club. It is not usual in India to offer liquor to visiting guests. Only in highly sophisticated and rich families is liquor ever kept and offered to guest. Jains as a community do not drink. So also the vaishnavite section of the Hindus. The Muslims are prohibited by their religion from drinking. Even where men drink, women scarcely do so As for the poor, if one asks them whether it is good to drink liquor, their reply will be an emphatic 'no'. Suchetaji was a member of a committee under the chairmanship of Bakshi Tek Chand. She told me of her experience in the labour class, and the poor in general. When they were asked if they wanted the liquor shop in their neighbourhood, the straight reply was, "Please take it away; its existence is a temptation which few of us can resist."

The poor never talk of the invasion of their personal rights They do not think that they have the right to do the wrong thing. It is only the sophisticated and the new rich who say that prohibition will interfere with their personal liberty. In our Constitution, there is a section on fundamental rights It talks of the right to free speech, freedom of association, freedom to profess and propagate any religion, etc. But there is no fundamental right to consume intoxicating drinks and drugs. All other rights except the 'fundamental rights' are subject to legislation by Parliament and state legislatures. It can easily be perceived that the drink habit, specially among the poor, is not only against their economic interests and those of their families, but against their morals and often against public peace. In any case, if it is a sacrifice for the rich, the educated and the cultured sections of our population to refrain from drink, they cannot absolve themselves from their duty to the poor whose whole life and that of their families are ruined by drink. Today, even affluent nations are expected to help the poor nations. What harm is there if the rich forego some of their pleasure for the benefit of the poor of the country, on whom their prosperity largely depends? The needs and the demand of the poor of this country are not unjust in this inter-dependent world of ours. □

EMPLOYMENT AND GROWTH

Are they Antithetic?

DR. M. P. PANDEY

THERE HAS been occasional controversy about how to deal with problem of employment. The controversy came to a head at the time of preparing the fifth five year plan, which led to the supersession of one draft by another.

The controversy was whether the problem of unemployment should be tackled in its exclusiveness, without regard to growth, or whether attention should be on stepping up growth rate as such, which will take care of the problem of unemployment. The first Approach paper observed that "the main causes of abject poverty are (i) open unemployment; (ii) under-unemployment; and (iii) low resource base of a very large number of producers in agriculture and service sectors." It further observed that the elimination of abject poverty will not be attained as a corollary to certain acceleration in the rate of growth of the economy alone In view of this it was suggested that there should be 'direct attack on the problems of unemployment, under-employment and massive low and poverty'

The second Approach paper had a different view According to this 'the twin causes of poverty are under development and inequality. It, therefore, maintained that growth and reduction in inequality are both indispensable for a successful attack on mass poverty. It felt that action will not meet the challenge of unemployment and mass poverty. The capacity to offer gainful employment in a sustained manner ultimately depended on the growth and development of the economy of any country. Hence it was argued that the question of stepping up growth should be the prime concern of planners.

At this point it seems desirable to look to the past to find out what has been the position of employment among the major objectives of the earlier plans. The first plan was essentially a rehabilitation plan, intended to recoup the damages suffered by the economy in the wake of the second war, and the partition of the economy. Real planning in the country is supposed to have started from the second plan. Among its many objectives the foremost was 'rapid increase in national income so as to raise the standard of living in the country. In the third plan the emphasis shifted to 'self sufficiency in foodgrains and increase in agricultural production to meet the requirements of industry and exports'. But the essential objective of growth was again reiterated. In fact, the first among the various objectives was securing an increase in national income of over five per cent per annum. The fourth plan set before itself two principal objectives, namely, 'growth with stability' and progressive achievement of self-reliance There was reference in this plan to 'creating more employment opportunities in the rural and urban sectors so as to absorb the entire labour force' This qualifying objective again made the principal objective relating to employment ludicrous.

Main Focus So Far

On the face of the above facts, it becomes clear that ever since planning started in the country the main focus has been on growth. The question of employment was there in the minds of the planners, no doubt, but it was never the core problem, as it was made out to be in the first Approach paper of the fifth plan. It was supposed that rise in the growth rate would automatically

take care of the problem of employment. The planners were clear in their mind that problem of unemployment was essentially the outcome of economic backwardness coupled with inequal distribution of resources. Naturally they attempted first to augment the growth rate, sidetracking for the time being issues like unemployment.

Double Failure

Now the new government has again brought the issue of unemployment to the fore. A question, naturally, comes to mind whether the last controversy of growth vis-a-vis unemployment raised at the time of formulating the fifth plan is likely to erupt again. It may; one does not know.

The point is that one can afford to ignore a chronic problem for the time being, if another problem becomes acute. Growth is a problem in the Indian economy which is chronic in nature. In spite of our attempt at planning for the last 26 years, we have not attained a steady growth rate. The reasons for its not happening are again chronic in themselves. But in the meantime the problem of unemployment has become acute and critical. Its solution admits of no delay. But what is done to deal with the problem of unemployment cannot be at the cost of growth. This was the bone of contention at the time of finalisation of the fifth plan. Theoretically it is possible to choose a line of action which, will while promoting employment will also promote growth. The model built for the second plan had this basis. The appropriate choice of technique is vital to any planning. Unfortunately the experience suggests that there has been a failing in making this choice, and a double failing in implementing whatever had been the choice. On the face of it, it is hoped that the old controversy of growth versus employment will not come up again and due thinking will be given to how we can have the one without greatly sacrificing the other.

TOWARDS ENDING RURAL POVERTY

New Industrial Policy

I. C. Puri

ABOUT 15 million rural artisans, 35 lakh handlooms and a large number of agro-industries utilising rural resources and over 2 lakh tiny units account for considerable employment at comparatively low volume capital cost. But many units are not fully employed because of lack of product diversification to meet consumer demand, low purchasing power of the mass of population, irregular supply of raw material and finance and above all absence of marketing channels. These industries could mobilise resources of capital and skill which otherwise would remain unused; they contribute to output almost immediately, since the gestation period is short. Cottage, village and small scale industries help regional development, reduce overcrowding in bigger cities, ensure more equitable distribution of the means of production and national income and bring about integration of rural and urban economy.

Whereas the investment needed for providing employment to one person ranges between less than Rs. 1,000 and Rs. 6,000 in village and small industries, the corresponding range of investment in the large-scale industries is between Rs 40,000 and 100,000. If 70 to 80 million are to be provided employment in the next decade, large industries do not provide a solution because of the enormous investment required for the purpose and their urban base.

In the last 30 years the village economy was divorced from industrial activities. This led to unbalanced rural economy solely dependent on agriculture. This has to be reversed by appropriate and intermediate technology.

In the last week of July, there was a meeting of senior officers of Small Industries Development Organisation at Bangalore at which the operational implications of the new industrial policy were explained to field officers. For maximum production of consumer goods, the field officers have tentatively listed out suitable product lines from a regional or local angle. The exercise involved identification of industrial consumer goods, originating in some processing or manufacturing activity, which have entered into the consumption pattern of the various strata of rural society. As the purchasing power of the people increases, there will be a greater demand for some consumer goods than others. The field organisations of the Development Commissioner, Small Scale Industries, have also to identify the existing units which could raise their production and productivity; identify new entrepreneurs who could be encouraged, undertake intensive activities of setting up new units and arrange training of existing artisans in areas covered under the rural industries projects, rural artisans programmes and in backward areas.

Upgrading of Skills

Optimum use of human and material resources would require upgrading of skills of the existing semi-skilled and unskilled workers; in-plant or on-the-job experience to fresh entrants; training of agricultural labourers and rural workers on household and non-agricultural occupations and ensuring raw material, finance and market when they raise their production or get into production. In this extension and training programme, the emphasis would be on utilising local material resources. This would require a tie up with the research in science and technology undertaken by different CSIR institutions.

In the case of village and small scale industries, the policy of preventing monopoly concentration of economic power would require that large industries do not enter in the small industry sector directly or indirectly; that concessions and encouragement are given to tiny units; and the tendency of the big among the small units to start a network of small units in the same state or in different states is discouraged. There is another direction in which measures would have to be undertaken to prevent concentration of economic power. In the case of reserved items—product lines which have been reserved for development in the small scale sec-

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tor and some ancillaries—there is a tendency to produce them captively by the large industries. Not only has this tendency to be discouraged, but the components and parts which could be economically and technically produced on a decentralised basis may also have to be offloaded to tiny units. If necessary, this may have to be done with the support of legislation.

The census of small scale industries has revealed that some products and processes provide larger employment than others. It has been found that in the case of fruit and vegetable canning, leather tanning, readymade garments, safety matches, fireworks and agarbatti the employment generation is much larger. These and similar employment-oriented industries will no doubt have to be developed. At the same time indigenous and export markets will have to be found for them so that their employment potential may be fully exploited.

To make the industry responsive to social needs the extension officers of the small industries development organisation would provide technical assistance for reducing costs and would keep a watch on prices. The small industry would meet the social needs if it produces goods and services required by the masses, modern agriculture, educational institutions, public health organisations and construction activities in sufficient quantities and at cheaper prices.

Administrative Measures

The implementation of the new industrial policy would call for specific measures, administrative and promotional. Some of these are indicated for the purpose of a wider discussion

The government is committed to the development of agriculture, village and small industries as a means of removing poverty and unemployment. In the rural areas the character of employment and unemployment has to be assessed with reference to productivity and income. Coordination of various development programmes like integrated rural development, the marginal farmers and agricultural labour scheme, the rural industries projects, the rural artisans programme and schemes relating to silk, coir, handicrafts, poultry and dairy, would yield better results. In the case of rural industries projects and the rural artisans programme, which are centrally-sponsored schemes, some measure of coordination has been achieved. Increasing the productivity of labour, raising the purchasing power of the masses and creating additional employment opportunities are different aspects of the same goal, namely removal of poverty. Production has to be diversified; intermediate technology adopted and markets opened beyond the local boundaries of a village or a group of villages or even a state.

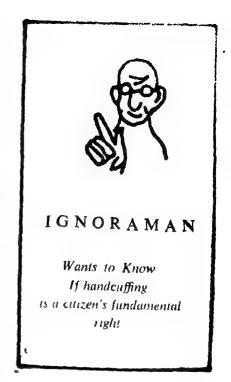
The accent of the small industry programme would be on the promotion of tiny units. Facilities, concessions and subsidies will be linked to employment generation Instead of a capital subsidy for development of industries in backward areas, some kind of employment subsidy may have to be introduced. The form of the subsidy will have to be worked out.

The rural industries projects and the rural artisans programme would be the core activity of the small industries development organisation. The small sector in urban areas which have reached a stage of maturity may have to rely on its own resources.

There has been in recent years an impressive increase in the scale of credit provided by commercial banks to small scale units Yet, several units particularly cottage, village and tiny units, are outside the scope of institutional and bank credit The study team of the State Bank of India which went into the question of sickness of small scale units, has pointed out that these units have very limited resources which do not permit any margin of error and that they lack equity.

Marketing Organisation

The conclusion seems to be that the banks and other financial institutions are still unable to meet fully the requirements of village and tiny units. Arrangements on the lines recommended by the Administrative Reforms Commission for an apex financial institution may have to be reconsidered.

All seem to agree that market intelligence, brand image, and insecure market demand are great constraints to the growth of village and small industries While improvement in the purchasing power will be a real assurance of a secured demand, a suitable market organisation, centrally sponsored or of a federating type, is a matter on which there could be more than one view However, the small units may have to be assured of a minimum quantity order so that

lack of demand and delay in payment of goods supplied do not come in the way of increased production.

Procedural formalities of various departments like excise, water and electricity and sales-tax would have to be taken care of by the development agency through centralised clearing arrangements The individual units will have to be left to concentrate on production.

There would have to be a rational and simplified procedure of reporting production, employment and consumption of raw material so that the results of the development programmes may be monitored and assessed and programmes redrawn on the basis of data

If rural poverty is understood as low productivity and income, under-employment, seasonal unemployment and disguised unemployment, both poverty and unemployment in rural areas would be mitigated to a considerable extent through arrangements suggested earlier. The salient features of these arrangements are diversification of production, upgrading of skills, minimum assured market and supply of inputs and finance. The necessary infrastructure and training would also have to be provided. Whereas this would change the existing character of employment in rural areas, the addition to the labour force would have to be absorbed in larger measure in village and small industries. □

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Schumacher Bhavan

R ENAMING one of the many Bhavans in New Delhi after chumacher may be a good way of ıcknowledging the validity for us of ıs ideas and also of affirming our ommitment to the Gandhian maxim ıat "the supreme consideration is ıan".

This extraordinary world citizen ıased his economic philosophy not ın mere concepts of "growth rate", development" and "economics of cale", but on a basic premise that he goal of endeavour should be an mprovement in the human circumtance. "An entirely new system of hought is needed", he fervently ırgued, "a system based on attention o people and not primarily attention o goods".

After Gandhi, many great men of ʋur times have been troubled by the lisastrous course of the nineteenth ·entury legacy of what Schumacher ımself called "the economics of gigıntism and automation". Chief ımong them was Mao Tse-tung vhose experiments with backyard lurnaces evoked diversion from the 'wise" economists. That the experinents did not succeed does not letract from the human ethos behınd the idea. The cultural revoluion was a conscious attempt to bring the people again into the picture in ı state which threatened to become ı monster production apparatus with ıll the consequent concentration of :conomic and political power. Mao's ıdea incentive as against the material ncentive has been termed more Hegelian than Marxian. The labels are unimportant so long as the ·fforts for human emancipation revolve round man himself, not the machines.

If Schumacher called Gandhi "the ;reatest economist of the twentieth country" (a view very much shared ɔy Gunnar Myrdal), he also accep·ed the human basis of the Mahaıma's economics. Look at the remarkable identity of ideas. About his new system of thought, the author of "Small is Beautiful" said, "It could be summed up in the phrase—production by the masses rather than mass production". He further said. "Production should be from local materials and mainly for local use". Gandhi said, "Distribution can be equalised when production is localised, in other words, when distribution is simultaneous with production. Mass production takes no note of the real requirements of the consumer......The machine should not tend to make atrophied the limbs of man".

The mission of men like Schumacher was to tell the world that economics cannot stand apart from man's cultural development and cannot itself be the instrument simultaneously of supposed material advance of the people and their real enslavement to a ruthless system of exploitation. A scheme of progress which ignores the social and moral consequence is no scheme at all.

Schumacher had a unique charm of presentation of his case. Writing or speaking, he delighted as much by the cogency of his logic as by the authenticity of his humour. On his being called a crank, he remarked, "It is an excellent thing, a crank. It is not expensive, it is relatively non-violent and it causes a revolution."

It was one such crank that caused a revolution in India. In Shri Chavan's eyes, "Small is Beautiful" could be (to use the author's words) "a kind of nostalgic nonsense" even as Gandhi's cottage industries seemed to the Congress Party to be primitive rubbish. Oh, for fewer wise men in this hapless world !

Are There Gangarams Now ?

ALMOST exactly a hundred years ago he had helped in the completion of the Amritsar-Pathankot rail link. He was hardly twentyfive then. His passion for learning took him to England where he studied water-works and drainage construction. Then came his memorable association with the building of modern Lahore. His fame preceded him wherever he went. Honours came thick and fast; and, in the fitness of things, (for bureaucracy was as efficient then as it is now), he was overlooked for promotion. It was time to quit government service.

The story thereafter reads almost like Somerset Maugham's Verger. At the age of 52 he started on remaking Patiala. Seven years' tireless work and then a period of rest in England. What a strange holiday ! He travelled some 15,000 miles, studied English farming and returned with an assortment of tools and passion for agriculture

Water was the problem then as now. Characteristically, he asked, "What can I do with my experience in engineering ?" What, indeed !

Defying rain and sun, he plunged into his new tasks. He was working on a barren stretch of land in Lyallpur with the nearest railway station 25 miles away. His experiment : lift irrigation by steam power or by electricity. In three months he completed this experiment and the first *rabi* crop was havested in the arid soil.

He had wished simultaneously to harness power from the many canal falls in Punjab. But he had to reckon with the secretariat's delays. He waited for fourteen years. In 1917, when he was 66, he was given on lease some 65,000 acres in two instalments. This was high land, unirrigable by canals. He was to provide irrigation by hydro-electric power and restore the land to the government for settling the soldiers back from war.

The full story of this pioneering and daring venture need not be repeated As an eminent man said, the achievement "reads like a romance".

Such a man was Sir Gangaram. And his work in social reform is another saga, even as his charity makes a fabulous story. His ideas on industry, education, women's uplift mark him out as an eminent Indian of all times.

If the issue of a stamp in his memory has only significance, it is a reminder to our engineers and technologists that there are vaster challenges than a competition for posts and salaries with a decadent bureaucracy. Opportunity—great opportunity beckons to them—to improvise, innovate, dare and act. Not all the secretariat's contumely can stop the Gangarams of this world. The question is, "Do we have them now ?"

Sanjaya

A Review Article

The Endorsed Vision of Gandhi

KRISHNA CHAITANYA

HOW SHOULD one approach the task of reviewing the reprint of a book on Gandhi that was published in the early twenties, when another quarter of a century had yet to elapse before Gandhi confirmed the message of his life in the manner of his death, and yet another quarter of a century has gone by since his death ? One good approach seems to be to note the vicissitudes of his ideas in the half-century that has passed since the writing of the book and also to check—with our advantage of hindsight, one should add in fairness—the insights or difficulties of Rolland in assessing those ideas that seemed, at that time, to be so strange, if not obscurantist or even reactionary

The early twenties even the Great Depression was a decade off and undreamt of. It is not surprising therefore, that Rolland has some genuine difficulties in understanding Gandhi's ideas about the industrial-technological culture, about the use of the machine, about the return to crafts—ideas that seem to be associated with lost pastoral epochs He reads them as motivated primarily by a revivalist bias, a desire to return to the "ancient culture", to the "plough and the spinning wheel", to a feeling that India "has nothing to learn from other nations" Rolland has the feeling that this attitude may seem to imply "a denial of progress"; he hastens to defend Gandhi, but the only argument he can find is that technological-economic progress is the forward march only "of a certain *phase* of the human mind" That is, he feels no misgivings about the progress of the industrial- technological culture being really a forward march, and its ability to fulfil its promise of assuring material affluence to every one

That was a serious misreading, though we are able to see this, not because we are wiser than Rolland, but because we have the benefit of hindsight, the experience of a whole half-century of disenchantment. The person who said that to the hungry man God dare appear only in the form of bread can never be accused of ignoring the primacy of the material needs of the human being without which he just cannot survive, though he would not have conceded their ultimacy any more than Rolland. If then he rejected the economy of mammoth technology and industry, one main reason was that he was convinced that it would not be able to guarantee affluence or even sufficiency to every man, as the basic motivation behind it militated against this But Gandhi was not a writer of text-books on economics and, therefore, we have to do the exegetic analysis for understanding his vision.

To condense in a para what would need a book to argue and substantiate · as Reinhold Niebuhr has pointed out, the 'I' is so intimately related to the 'mine' and the 'Thou' to the 'Thine' that relations of accor[illegible] or conflict between individuals imply questions of pos[illegible] sessions When life is very intimately united to life as in the case of the family, questions of mine an[illegible] thine are resolved in a sense of common possessions Accepting Tillich's definition of religion as ultimate con cern (which, incidentally, would disqualify some insti tutional religions and qualify some attitudes of secula[illegible] humanism), one can say that religious 'meta-economics' seeks to control economics from the perspective of th[illegible] family of man This is why you can come acros[illegible] passages which read astonishingly 'socialistic' in medie val Christian saints like Basil, Chrysostom and Aqui nas and see the same outlook in the concept of th[illegible] trusteeship of wealth, of the greater obligations of th[illegible] relatively more affluent, in both the Buddha an[illegible] Gandhi But what is the motivational thrust, the foc[illegible] inspiration, behind the frenzied activity of our moder[illegible] epoch ? Adam Smith, its founding father, laid dow[illegible] that man can be triggered to action only by self-intere[illegible] and went on to say that this was all right because a 'invisible hand' would arrange plenty for all fro[illegible] the selfish rapacity of each Till Weisskopf, economi[illegible] turned humanist, subjected economics to an exte[illegible] tialist analysis very recently, no one seems to hav[illegible] realised that Smith was making presumptuous assum[illegible] tions about the nature of man and the design of histor[illegible] But the Book of Smith became the Bible for a cu[illegible] ture which the Social Darwinism of a later day fu[illegible] ther helped to entrench itself. It has now develop[illegible] into an anti-culture which R. H. Tawney called t[illegible] "acquisitive society" and Bertrand de Juvenal terme[illegible] the "civilisation of ever more".

The consequences have been many, all equally di[illegible] astrous Smith's crude psychological reading of ma[illegible] encouraged, indeed sanctified, the individual's adversa[illegible] role against the whole world . the world of nature [illegible] well as the world of his fellow-men. The exploitation [illegible] nature has been rapacious beyond all need for con fortable survival; and studies like *A Blueprint for Su[illegible] vival* and those of the Club of Rome have shown th[illegible] the criminal greed blessed by Adam Smith has ended [illegible] in the imminent danger that the life-support resour[illegible] systems of the planet would be exhausted with[illegible] a matter of decades There is some lingering ho[illegible] that mankind can still be saved, but this will ne[illegible] man's change-over, in his economic motivation, fro[illegible] greed to need. And to curve back to Gandhi, a[illegible] Rolland's difficulty over his economic philosophy, [illegible] us quote from a 1976 editorial in *Acorn*, organ of t[illegible] Midwest Energy Alternatives Network, USA : "Mu[illegible] the era of recognising the natural limits of global r[illegible] sources spell deprivation and hardship for many ? A[illegible] answer suitable to every nation comes from Gand[illegible] when he said : 'there is enough for everyone's nee[illegible] but not enough for everyone's greed'."

Gandhi also expressed his conviction that peac[illegible]

MAHATMA GANDHI by Romain Rolland; Tr from the French by Catherine D. Groth; Publications Division 1976; Pages 125; Price Rs. 7

harmony between men, and between nations, were not realisable in a factory civilisation. When a man sees half a century ahead of his time, he may sound obscurantist to his contemporaries. But isn't this fairly obvious today? And the analysis of why it has turned out to be so is also not very difficult today. In the roseate picture of the ever-expanding and ever-ascending spiral of prosperity, monopoly first, and cyclical depressions later, were disturbing and irritating presences. The latter were at first brushed aside by theory as local and temporary phenomena. But Keynes discovered that they were inevitable in economies founded on Smith's principles. Instead of seeking more truly human principles, Keynes advocated the rejuvenation technique of continuous and large-scale public spending. Smith's basic reading of man had placed him in an adversary role in relation to others and this pattern spread to the relations between nations. That this would happen inevitably had been made clear two thousand years ago by Socrates. In the second book of *Plato's Republic*, Glaucon says that sufficiency does not suffice for him, he has a right to luxury. The relentless logic of Socrates forces him back, step by step, until he has to admit that a nation can maintain luxury for itself only by the predatory exploitation of other nations and this would unavoidably lead to war in which all nations may perish In spite of this, in our times, Keynesian public spending became easiest and compulsive in the war industry An inhuman reading of human nature by economic theory, and the compulsions of economic practice flowing from it, have brought mankind under the shadow of the mushroom cloud of the nuclear bomb

Today, Gandhi's advocacy of the plough and the spinning wheel does not have to be defended against the charge that "it stands for a denial of progress" as Rolland felt constrained to do and did not manage too well. Gandhi was merely anticipating Schumacher's insistence today on a "technology with a human face" Carlyle and William Morris in an earlier epoch, and Fromm, Marcuse, Mumford, Ellul and a host of others in our own times, have shown that a runaway technology has broken loose from the control of man ceased to be a tool, turned against him and is now threatening him with extinction Would any one have imagined that in the USA, which has all along been in the forefront of the Faustian thrust of ever-advancing technology, a movement would rapidly gain strength for the use of solar heaters, wind mills, recycling of wastes, organic farming in preference to agribusiness with machines which use up lot of power?

Another very important aspect in which Rolland's reading now stands in need of correction is the meaning of political, or social, action for Gandhi. Rolland says: "Gandhi is religious by nature, and his doctrine is essentially religious. He is a political leader by necessity, because other leaders disappear, and the force of circumstances obliges him to pilot the ship through storm and give political expression to his doctrine." This is not in agreement with what Gandhi himself says in the introduction to his autobiography: that his aim in this life was *moksha* or self-realisation and that his ventures in the political world were directed to that end. Totally unconcerned with academic philosophising, but intensely existentialist in living, Gandhi was actually sweeping away the ambiguities in our tradition regarding Being and Becoming, transcendental and historical existence. This issue is very important and that is why this reviewer selected it for extended discussion when he was asked to give the Gandhi Peace Foundation's annual memorial lecture this year. The agrument can only be very briefly condensed here Schweitzer's distinction of world—affirming and world-denying outlooks is valid though, in mentioning only India as an instance of the latter, he forgot his own tradition—Jerome who had nightmares because he felt guilty about his love for classical culture, the Desert Fathers, Simeon Stylites who lived atop a tower for twenty years, Origen who emasculated himself. However, it is true that there has been a strong and unfortunately prestigious current of philosophical thought in India which held historical existence to be illusory This was not the message of the Gita At first stunned by the collapse of Rome under the onslaught of the Goths, Augustine rallied and reaffirmed his faith in the City of God and showed that it was our duty to make the City of Man conform more and more to it. Likewise, the Gita is an existentialist musing, right in the midst of a historical crisis, moments before an imperial system spearheaded by the thrust of egoism was sucked down into the vortex of war, and those who resisted it had to be shown that they had to escalate their motive from selfishness to the imperatives of self-realisation. About the eschatological fate of the soul, Gandhi has been as reticent as the Buddha. But we are incarnate beings, not disembodied spirits, and seeking to raise the politically, economically or socially oppressed is not trying to make an illusion more roseate; and the commitment to conscience needed in this struggle, which may often end in martyrdom and did in the case of Gandhi, is the supreme realisation open to embodied beings. Redemption is possible in history, further since Absolute Being presumably does not stand in need of any redemption, any further self-realisation, we can say that redemption is possible only in history.

But these corrections of Rolland's analysis, though necessary, do not at all affect the fact that in this early book we have the antiphonal response of a sensitive mind to a noble person The half-century that has elapsed since it was written has not outdated it

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Unless the capitalists of India help to avert that tragedy by becoming trustess of the welfare of the masses, and by devoting their talents not to amassing wealth for themselves but to the service of the masses in an altruistic spirit, they will end either by destroying the masses or being destroyed by them.

Mahatma Gandhi

:redit for Rural Development

I. J. Naidu

INSTITUTIONAL CREDIT has played an important role in :celerating rural development. has helped adoption of new chnology for agricultural :velopment.

The performance of the credit stitutions has to be judged not one by the volume of credit lvanced for agricultural development but also by its capacity to eet the challenge of reaching out the small farmers, rural artisans, ;ricultural labourers and other embers of the weaker sections of e community.

Attention of credit policy-makers is to be focussed on the rural poor it as a measure of charity or social rvice but rather because they are e largest body of producers and ovide immense labour resources. xperience has shown that they are ore productive where land is arce and labour more plentiful.

All these call for structural ianges in the institutional frameork. The most important prequisite is the establishment of tegrated credit-cum-services stem at the base level. The commendations of the National ommission on Agriculture about .e organisation of farmers' service ocieties (FSS) is significant. These ısume total responsibility for agroıral development and the requireents for the operations of its embers including small and arginal farmers and local artisans. hey are registered as cooperative ocieties and the weaker sections of e farm community small and arginal farmers, agricultural bourers and rural artisans have a :cisive voice in their management. SS is expected to meet all the edit requirements of the members cluding the long-term investment edit, undertake the business of ıpplying inputs and services at asonable prices and marketing of ıe produce of its members and ovide appropriate linkages with nctional production-cum-marketg cooperatives for dairy, livestock aring and sericulture.

In addition to organisation of SS in selected areas, a national ogramme for reorganisation of e traditional primary agricultural edit societies (PACS) has been unched in different states. The reorganised PACS are expected to provide integrated services in the rural areas like provision of credit and inputs and supply of essential consumer goods. Besides, these societies will also disburse consumption loans to weaker sections of the community in pursuance of the national decision on the recommendations of the export committee on consumption credit. To meet the special needs of the tribal areas, large-sized multipurpose societies capable of providing credit-cum-marketing services and supply of essential consumer articles are also being established. So far, about 800 such societies have been organised in different states.

In 1974-75, more than 30 per cent of the total loans issued by the cooperatives in the form of working capital loan and investment credit went to the weaker sections. There is a case for a progressive step-up. The differential rate of interest scheme administered by commercial banks provides institutional finance at four per cent rate of interest to the weakest sections of the community. The scheme has a definite rural bias since not less than two-thirds of the advances under this scheme are routed through the rural and semi-urban branches of the commercial banks. Besides, not less than one-third of the advances under the scheme should flow to eligible borrowers belonging to scheduled castes and scheduled tribes. Further, government subsidies are made available for accelerating the flow of institutional credit and related facilities to small farmers.

Dairying and Village Industries

The problem of livestock raising among the small farmers through credit for supply of feed and the development of marketing is of crucial importance. The supply of credit for livestock raising should cover such diverse purposes as cultivation of fodder crops, maintaining buffer stock of fodder, development of pasture land, developing small farmers' livestock holdings and the marketing of livestock products including milk, meat, hides and skins. A dialogue between the credit experts on the one hand and the animal husbandry experts on the other would facilitate identification of the precise factors that have so far prevented credit institutions from financing livestock development on any significant scale. The fishery sector is another important area where much can be done for the welfare of the weaker sections.

Apart from development of all aspects of agriculture sector in its widest sense, the promotion of rural village industries merits special attention in the context of rural development and removal of unemployment and under-employment. Modernisation of agriculture creates a demand for new inputs and consumer goods and services such as improved agricultural implements, small pumps and motors, services of tubewell operators, mechanics etc. Rural homes need basic furniture and improved kitchen utensils. It is, therefore, essential to develop the capacity to design and manufacture simple producer goods appropriate for small scale village industries. It is also necessary to upgrade the skills and organisation of village blacksmiths, carpenters, shoe-makers, weavers, and potters. With the development of agriculture, certain categories of urban-based industries can be decentralised and located in the rural growth centres with little economic sacrifice. All these presuppose careful perspective planning and a nationally supported programme to provide inputs like credit, raw materials and equipment, electricity, training for technical skills, development of necessary rural and village industries suitable to the area and above all linkage with market centres.

Measures to improve health, education and housing for the rural poor should go hand in hand with economic well-being. A task of this magnitude calls for careful planning and policy formulation, reallocation of priorities, co-ordination of sectoral efforts for social and economic welfare, massive mobilisation of resources and, above all, a sense of dedication. Rightly, therefore, attention has been focussed on rural development at the highest level.

SPECIAL ARTICLE

Dimensions of Public Participation in Development

ANAND SARUP

PARTICIPATION IN development has to be looked at essentially from three points of view. First, in a democratic society, it creates an awareness of problems and possible solutions among the people and thereby equips them as citizens to exercise choices relevant to development in a rational manner. It also creates an atmosphere for purposeful communication and deliberation and thus starts the process of building up constructive leadership patterns at the grass roots level which are essential for the survival of democracy. To the extent such public participation is institutionalised, a stable base is created for decentralised exercise of power both on territorial and on functional basis.

Secondly, public participation is important from the viewpoint of learning about what is really happening on the ground, either as a result of market and other exogenous forces, or as a result of government sponsored activities and also about how the people are reacting to these happenings around them. Eventually, in a democratic set up, a plan or a government scheme has a chance of succeeding only if it evokes a positive response from the people On the other hand, if the people who are either affected by these or are witnesses to their implementation feel that these are unnecessary, ill-conceived or badly implemented, the whole effort will sooner or later peter out and in the bargain, bring a bad name to the government.

Thirdly, it is the people who, as users of facilities, should be taking decisions about the location, nature and quality of infrastructural facilities and social services since they are in the best position to know their requirements and the logistic conveniences. Where people have not been consulted before taking locational decisions in relation to these, there has been a tremendous incidence of underutilisation; for instance some of the industrial estates set up in the early sixties are vacant even now for want of takers.

CAMOUFLAGE OR SINCERITY?

If "public participation" is being organised only as a device to legitimise decisions already taken, it is best that measures towards this end should be made as diffused as possible around vague issues so that nothing concrete and possibly contrary to the "given decisions" can emerge. If, on the other hand, public participation is sought to be a tool for decision making, then a tremendous amount of preliminary analysis of relevant information has to be undertaken and the people have to be presented not only with specific issues and alternatives but also made aware of the limitations within which decisions will have to be taken. Public participation will yield meaningful results only if many rounds of discussion are organised at various stages of decision-making.

It is elementary that if public participation is sought as an essential input in decision-making, the senior echelons of the administrative hierarchy have to believe genuinely that, with regard to the matters on which participation is sought, they *do not already know* the correct and final answers. If this kind of humility and receptive frame of mind is not there, it is hardly fair to expect that the process will be carried out with any seriousness of purpose. In this connection, it may be relevant to point out that decision-making through public participation, whatever may be its value from the democratic or long term point of view, is more cumbersome and dilatory than arbitrary decision making at the top and, therefore, before it is started the quantum of preliminary work and educational effort required and the time dimension of the process should be reckoned with and organisational arrangements required for these iterative exercises should be built into the process of decision making. It should also be recognised that to the extent public participation in decision-making is widespread and effective, there is likely to be a strong adverse reaction in case recommendations arising out of the process are ignored in an arbitrary manner without giving convincing reasons.

WHERE FIRM DECISIONS ARE NEEDED

Planning from below has been a favourite cliche and consequently village, block and district plans have been prepared in connection with the formulation of practically every five year plan. None of these has yielded any meaningful results precisely because some of the steps indicated above were not taken Moreover, these exercises of "planning from below" have been one shot affairs in contrast to the repetitive iterative exercises which go on between the Central Planning Commission and the State Governments

It is essential because of the attitude of the departmental decision-makers at the top, that village, block and district plans end up by being no more than census operations for unco-ordinated demands which cannot even be considered within the ever present constraints of resources. Consequently, these 'plans' end up on the shelves and decisions are finally taken in total disregard of these, creating strong resentment among those who were consulted as well as those who collected and organised the information at various levels. If planning at village block or district level is to be initiated again in connection with the formulation of the sixth plan, the planners will have to reckon with tremendous resistance from all kinds of functionaries right down the line who have had an unpleasant experience in respect of these on earlier occasions.

The only chance of operationalising multi-level planning below the state level and creating motivation for taking it up seriously lies in taking firm decisions about :

(a) determining the extent to which each activity can be disaggregated;

(b) classifying various activities and their constituent components into divisible or indivisible categories with reference to different units of planning;

(c) identifying the minimum viable unit of operation for individual activities;

(d) specifying the levels at which :
   (i) final decisions will be taken ;
   (ii) general or specific recommendation will be forwarded upwards after scrutiny, correlation, analysis, and synthesis of inter-related information ;
   (iii) relevant information will be aggregated; and
   (iv) field or feedback data will be collected with reference to each area of decision-making;

(e) defining the preparatory work which will be done at various levels and the outlines which will be presented to provide a meaningful frame-work for interaction between various levels in the multi-level framework;

(f) working out the stages of the planning process at which inter-action will take place between different units of planning;

(g) predetermining the extent and the manner in which the decisions taken or recommendations made at lower levels will be subject to modification; and

(h) earmarking the resources which will be allocated for financing programmes evolved at different levels in the context of the divisibility and possibilities of disaggregation of various activities.

Other prerequisities for "planning from below" uld be :

(i) a clear conceptualisation of the process of inter-linking inter-related activities pertaining to production, infrastructure, input supply and social services at various levels,

(ii) breaking down the insularity of departmental agencies by identifying the authorities and/ or institutions who would have indisputable authority to commandeer information from them; and

(iii) providing these authorities/agencies technical support necessary for analysing and correlating this information into internally consistent and viable plans attuned to local conditions.

WIDENING BASE OF CONSULTATION

The mechanisms of participation generally consist consultation with only *some* of the participants oring others despite their crucial role with reference particular activities. Small entrepreneurs, traders, tential beneficiaries of social and tribal development programmes, representatives of professional dies, consumers and others operating in the unornised sector are seldom taken into confidence. *Anter class which has been ignored at great cost to development process is the large array of field el functionaries of various departments who could, en a proper forum and adequate protection from wrath of their superiors, come out with rare nugs of practical wisdom.*

Against a list of activities, the role of all the partiants should be spelt out and thereafter, measures consulting them at least informally, should be vised, notwithstanding the fact that final decisioniking would be organised through certain well regnised rural and urban development bodies like the nchayati raj institutions, municipal corporations, ban development authorities or block, district or isional development committees. It would be best to illustrate this point by indicating that in relation to the programmes of agriculture (especially in hill areas), water supply, gobar gas plants or rural latrines, the role of women is as important as that of men and if programmes are drawn up without consulting them, these may prove unrealistic and eventually unacceptable.

IDENTIFYING BENEFICIARY GROUPS

The operational implication of the above approach would be not to treat public as one uniform mass but to identify participant beneficiary groups for each activity and if well-established organisations do not exist for their representation, special panels to consult them should be organised at different levels and regions. In this connection the advice of progressive farmers, youth, students, teachers, women, craftsmen plying particular crafts, small scale entrepreneurs concerned with specific industries, consumers or potential beneficiaries of various infrastructural facilities and taxpayers will have to be sought, *inter alia*, regarding :

(i) the functional efficiency of ongoing activities ;
(ii) the specific measures required for further development;
(iii) the relative priorities to be assigned to alternative measures ;
(iv) the likelihood of the realisation of roles assigned to various categories of participants in a programme ;
(v) the feasibility of the extent of public participation envisaged by way of technological changes, investment of savings, allocation of material and manpower resources ; and
(vi) location of various facilities.

Not one set of schemes uniformly applicable all over the state, but a shelf of schemes pertaining to various objectives, providing for different mixes of infrastructure, inputs, technology, personnel and investment patterns, will have to be prepared to cover a large and variegated state.

People can make a contribution to the planning process only if they are presented with a well articulated and feasible framework of approaches, objectives, measures and alternatives. If, on the other hand, they are asked to indicate their needs in a vacuum, they are bound to put up a charter of demands which will be far beyond the capability of government. The correct stage to consult the people and their representative organisations therefore, is *after* adequate analysis of relevant information has been undertaken and a broad framework has been drawn up and *not* at the starting point of the planning process.

ENDING SEPARATE HIERARCHIES

In administration, people are not interested in the assignment of functions to various departments under the standing orders of the government. They look at activities or functions in their entirety and expect that their advice will be sought and acted upon by the government in an integrated fashion. People cannot make allowances for the fact that according to government's rules, separate departments take independent decisions regarding infrastructure, fiscal policies, labour regulations, technical training and supply of power and other inputs. The existing departmental barriers will, therefore, have to be lowered and the process of decision-making will have to be oriented to economic and social

functions like agricultural or industrial production, personal and social consumption and employment, rather than to arbitrary assignment of activities between departments irrespective of their functional inter-dependence. Departmental empires with their own hierarchies, vested interests and sectional outlooks have been defying the adoption of a participative approach to indivisible functions. This must end. Targets, roles, functions, projects, investment portfolios for departments dealing with economic infrastructure and supply of inputs would have to be *derived from* socio-economic objectives and targets rather than being determined independently or exogenously on the basis of the prestige and pull exercised by them.

The principal items for obtaining public participation in decision-making will relate to :

(a) the existing and projected levels of availability of consumption of various consumer durables, consumption goods, housing and social services for various sections of the population living in different regions ;

(b) production and productivity in relation to agricultural and industrial products ;

(c) augmentation and diversification of employment ;

(d) use and conservation of natural resources ;

(e) the implications of various alternative models in terms of savings, investment, allocation of material and natural resources and manpower inputs.

Once the objectives in relation to the above have been defined and quantified in the form of alternatives based on different norms of satisfaction, the concomitant requirements of infrastructure, inputs, technology, and supportive services will be worked out and presented for consideration and selection of the optimal model from the point of view of feasibility. In this connection, while representatives of the public and experts associated at the apex decision making level may contribute to the iterative back and forth exercises of harmonising alternative socio-economic objectives and the means of supporting these, the public forums at the village or block level can advise only on the locational, qualitative and operational aspects of infrastructure and other services.

Successful Implementation

Unless people legitimise a programme by accepting its desirability, the programme cannot be implemented in a democratic society. Successful implementation of most programmes also requires that people make the recommended choices in the allocation of natural and material resources, adoption of technologies, application of inputs, investment of savings and mobilisation of skills and labour resources. To ensure that the people do participate positively in accordance with plan programmes, it is essential that adequate efforts should be made for educating the persons concerned regarding the anticipated social or personal benefits of the measures proposed.

People are often averse to a high incidence of resource mobilisation, because they feel that most of the money goes into the maintenance of an ever growing army of government servants. Consequently, from time to time experiments have been tried for persuading the people to contribute directly to meet a substantial proportion of the cost of welfare projects either in cash or in kind This will have to be re-introduced since it engenders a high degree of commitment to development objectives and also, to an extent, results in the responsibility for maintenance of facilities being assumed wholly or partially by the community.

Implementation committees with public representatives as members can succeed only if policy makers and senior functionaries have an open mind about the possibility of a measure or a scheme proposed or administered by them being wholly or partly erroneous and operationally misconceived. There must be fast two-way channels of horizontal or vertical communications. Feedback information must be quickly analysed and inadequacies quickly removed.

Exclusive Jurisdiction of Panchayats

There has been a progressive erosion of the status of panchayati raj bodies, their accountability, viability and administrative authority. Narrow departmentalism and centralisation of power which was sought to be curbed through these, have reappeared The effectiveness of these bodies has also suffered considerably from their not being made squarely responsible for integrated planning and implementation with reference to even those activities which were obviously divisible and could be handled by these organisations. The position of these bodies was made even more untenable by the fact that in many States, very little power was vested in them for raising resources and at the same time practically all the money allocated to them was ear-marked for pre-determined activities, leaving little room for innovation.

Panchayati raj institutions should have more *exclusive* jurisdiction over at least a few important activities which are particularly relevant to socio-economic development within their jurisdiction. While concurrent jurisdiction in some matters is necessary, the enumeration of such activities has to be on a selective basis on objective principles so that the higher level bodies, especially state departments, which have far greater resources at their command cannot easily subvert the authority of the units at lower levels through the exercise of financial incentives and disincentives.

Crux of the Question

In many ways, the central issue needing urgent consideration relates to the financial viability and independence of various institutions with reference to the nature and quantum of responsibilities assigned to them. Either these issues will have to be sorted out or alternative forums for disaggregated decision-making at the regional, district and lower levels, will have to be created. Administrative units at the divisional or district level, by themselves or with the advice of ad hoc bodies consisting of public representatives, cannot function as instruments for mobilising meaningful public participation or effective decision making on the basis of local needs and conditions, since these stand in a position of clear subordination with reference to executive authorities at the State level

For obvious reasons, the functional or spatial units like cooperatives, banks and municipal bodies, have their own hierarchical tiers which cannot be subordinated to local advisory committees or the panchayati raj bodies This situation therefore, also poses a major problem of coordination for which no satisfactory solution has been found so far. In the interest of integrated decision-making and coordinated opera-

tion of the closely inter-linked functions assigned to these bodies, suitable measures need to be devised on a priority basis.

The crux of the question is whether there is honest intention on the part of higher authorities to decentralise decision-making and delegate specific functions to lower level units to the point of the exclusion of their own jurisdiction. Do they realise that somehow people at lower levels know more about both field problems as well as solutions and, therefore, they have to be consulted and trusted to exercise their judgment in relation to programme which affect them and the environment in which they are living ? Public participation in decision-making is essentially an aspect of functional democracy and, like other democratic processes, it is liable to error. Therefore, before the process of public participation is initiated, it is necessary that those in authority ask themselves whether they are willing to take the risks attached to democratic functioning in relation to the process of socio-economic development

RURAL DEVELOPMENT

The Challenge Can be Met

T. A Satyanarayanan

NEARLY SEVENTY per cent of our agricultural holdings are operated by small and marginal farmers, owning less than two hectares. What is worse, most of these farmers, particularly those in unirrigated areas, live below the poverty line, that is to say, they are below the minimum standard of consumption of twenty rupees a month at 1960-61 prices or thirtyseven rupees at 1971-72 prices.

With the introduction of high yielding varieties in areas of assured water supply in the mid-sixties, agricultural production has shown a significant increase. The gains from this technology are believed to have gone mostly to the richer farmer, who not only had easy access to technology, but also credit which enabled him to get higher yields per hectare. This resulted in wider disparities in rural incomes, with smaller farmers not getting their due share of the benefits of the green revolution.

This aspect was considered in the fourth plan which took up a special programme for the development of small and marginal farmers and agricultural labourers. In the wake of the recommendations of the National Commission on Agriculture, the fifth plan made some changes to make these agencies for development of such weaker sections more effective and purposeful. A similar approach was adopted for other schemes like drought-prone area programme, command area development, and tribal development programmes. However, considering the magnitude of the problem, their impact was minimal.

Apart from improved agriculture, other activities to supplement the income of small farmers and agricultural labourers and establishment of a country-wide network of small scale industry are important.

The core of the problem lies in creation of adequate employment opportunities for the rural poor. It is in this context that development of ancillary activities like dairy farming, poultry, piggery, fisheries and farm forestry assume significance. The plans for development of these activities should include not only provision of necessary inputs, but also development of organisations which will collect, store, and market the produce. Cooperatives have to be strengthened. With varying degrees of success, many of these programmes are already being implemented The all-India coordinated research programmes for improving the breeds of cattle and buffaloes have given a shot in the arm of animal husbandry and dairying. For poultry development, the government has launched a programme which provides for delivery of inputs and services in a package form, at the door of the farmer. Poultry production has also been adopted to help tribals. Special emphasis is being laid on improving the quality of inputs like breeding-stocks, feed support, health coverage and marketing.

Forestry and Fisheries

Since forests play an important role in rural and tribal economy, revision of national forestry policy is under consideration. Under social forestry programme, plantations are being raised on waste lands, panchayati lands, roads and canals.

With the declaration of an exclusive economic zone of 200 miles around our coast, the potential for fisheries development has increased. The budget for the current year has provided a three-fold increase in the outlay for fisheries development. The exploratory fisheries projects are being strengthened to chart and map out fisheries resources around the coast. Twentyfive fish farmers' development agencies are in operation in various states for intensive development of inland fisheries.

Some new initiatives taken in the current year for rural development include construction of rural roads with a budget provision of Rs. 20 crore and development of primary markets on a pilot basis. In the hill, tribal and drought-prone areas where basic facilities for proper marketing by producers are not available, regulated markets are proposed to be started.

The entire approach is to generate more employment opportunities within the framework of an area-centred programme of integrated rural development.

It must be admitted that increased productivity leading to higher income and increased opportunities is dependent on four pre-requisites : appropriate technology and its transfer to farmers , efficient input supply system including credit ; adequate processing, marketing and storage network ; and a well developed extension service

Crucial Role

While all these factors would help in increasing productivity on the farm, development and transfer of technology is a basic requirement. Since farming in the country is carried on under varying agro-climatic conditions and involves a wide range of operations and management practices, agricultural engineers have a crucial role to play in developing suitable implements. These could be manufactured by small and medium industries dotting the contryside. Processing of various agricultural produce also offers a wide scope for rural industries.

The elements going into an integrated strategy are well known

and do not require too much of sophistication to implement. We have capable scientists and technologists who can provide us the know-how and make necessary innovations. Extension has to play a vital role to ensure the transfer of technology. Its weaknesses have to be removed.

With political will, the allocation of resources may not prove a stumbling block. What we need most now appears to be a streamlined organisational structure, reaching out to the remotest areas to keep a constant watch over immunerable small details and to ensure effective implementation of the programmes. The success of rural development depends on our ability to take up this challenge. □

MAHARASHTRA NEWSLETTER

GUARANTEED EMPLOYMENT: NEW DIMENSIONS

AVINASH GODBOLE

IN PASSING a bill guaranteeing employment to every able bodied person in the rural areas, providing unemployment allowance of one rupee per day to those whom the government would not be able to provide such employment, the Maharashtra government has partially implemented the constitutional provision that citizens be given the right to work—partially because the provisions of the bill are applicable to rural areas only. The act places on the Statute book the Employment Guarantee Scheme (EGS) which has been in operation for three years in the state. But unlike the original scheme, the act casts on the government, a statutory obligation to provide jobs in rural areas within 15 days of demand.

Under the new act, all adults over the age of 18 in rural areas (including 'C' class municipal areas) in the state who volunteer to do unskilled work will be provided with jobs, in works which will bring into being durable assets for the benefit of the community and the economy as a whole. While providing jobs, care will be taken to see that the normal agricultural operations do not suffer because of the drafting of persons for works under the scheme. An attempt will also be made to give continuous employment in cottage, village and small industries and also in agro-industries.

The jobs provided will be generally within a panchayat samiti area as far as possible but in any case not more than five kms. away from the place of the residence. Every employed person under the scheme will be paid three rupees per day. It will cost the government about Rs. 72 crore a year. Inclusive of unemployment allowance, in cases where jobs cannot be provided, the government expects a total annual expenditure of the order of Rs. 82 crore in a full year.

To provide funds for scheme, the government has introduced professional tax on a slab system for the past three years from which about Rs. 25 crore are expected to be collected annually. In addition to this, the government intends to set up an employment guarantee fund to which the proceeds of the professional tax will be credited and the government will give matching grants from the general exchequer. A portion of the fund will be used to educate the urban unemployed and give them opportunities for self-employment.

Under the act, there is a provision for registration of those who want work. The registration will be done at the village level by the VLW or *talathi*. Once a person registers his name, the state will be under obligation to provide him work within 15 days of the registration and if the government is unable to do that, the person will be entitled to unemployment allowance as provided in the act, till the government gives him work.

The act also provides for medical help and compensation for those persons who may be ailing or who may suffer injuries while on duty. □

HSCL'S ACHIEVEMENT

DR. R. P. VERMA

TO DEVELOP indigenous expertise and construction know-how for steel plants in particular and other spheres of construction activities in general, Hindustan Steel Works Construction Limited was established in 1964. Bokaro was its first assignment. The progress of construction has been a story of steady, hard and dedicated work. Towering structures and chimneys now dominate its skyline. Construction work began in October, 1965 and as of today a large number of its units have gone into production.

The growth of self-reliance has been quite spectacular in respect of equipment and materials supplied for the plant. Most of the structures required for the first stage of Bokaro were fabricated indigenously. In the second stage for trial all structures will be indigenous. This is in striking contrast to the position in Bhilai where nearly 80 per cent equipment of the first stage and 77 per cent in the second stage was imported The Heavy Engineering Corporation are the principal manufacturers of these heavy but highly complicated and sophisticated equipment. Mining and Allied Machinery Corporation have supplied conveyors which have been extensively used in this plant for the mechanical materials handling system SAIL supplied heavy electrical equipment, valves, and motors. Instrumentation Limited. Kota, have also had a big share in the supply of equipment. All the public sector undertakings shared between themselves 53 per cent of the total indigenous supplies of machinery and equipment for the first stage and this proportion has further increased during the second stage of the plant.

The effort to develop indigenous construction know-how got a further fillip with the government's decision to expand Bhilai's capacity to four million tonnes to set up three new plants at Salem, Visakhapatnam and Vijayanagar. HSCL are engaged in the construction and expansion of all public sector steel plants including Rourkela, Durgapur and TISCO's plant at Burnpur It has a large network of construction projects spread over 40 units in nearly 30 towns.

HSCL today have skilled manpower of over 21,000 people including engineers, supervisors, technicians and managers in all the disciplines of management.

.et Us Not be Taken for a Ride

SUMITRA KULKARNI

A FEW days ago it was reported that the steel ministry was proposing to set up three gigantic steel mills with a total capacity of 30 million tonnes at a cost of $ 6,000 million each. All this steel is to be produced for export purposes, and due to paucity of resources in the country, foreign parties have shown willingness to bear the entire expenses for the erection of such gigantic steel plants. Since then the steel ministry has also announced that such a proposal is under consideration

Steel is a key industry and such a vast foreign private investment in this sector naturally raises a number of basic issues

According to the industrial policy resolution of 1956 steel is reserved for the public sector and only the government can control and own the steel industry. With this proposed foreign private investment, steel industry can no longer be considered to be purely on the public sector. Whoever invests also owns and whosoever owns also controls the management. Therefore, it is logical to assume that with this proposal of accepting foreign investment, the spirit of the industrial policy resolution of 1956 will be modified. If any change in that policy resolution has to be brought about it is necessary that there should be a public discussion of all its implications. This is an issue of great importance. In view of this proposal, which is yet in an embryonic stage, the government should bring a fresh resolution before the Parliament and to deliberate on it in detail. After it is duly debated and amended and adopted by Parliament, then only can government finally commit itself to any private party and particularly foreign investors.

Presently, there is a glut of steel in the world market and the price of steel has gone down. In fact, most of the steel-producing countries are cutting down their investment and reducing their steel production. Because of such world trends, India has inadvertently got a morale booster in that it has become the most largest producer of steel in the world. Other major steel producing countries are no longer adding on to their production.

IMPLICATIONS OF REMITTANCES

Today India produces seven million tonnes of steel and even that we are not able to consume and we are forced to sell it in the world market at uneconomic prices. In the face of such global trends, the question is, "Should we produce at all so much of steel and if we do, where are we going to sell all this 30 million tonnes and who are going to be the buyers"? Report has it that the foreign investment will ensure the export of these 30 million tonnes and we will earn more foreign exchange. One wishes one could believe the fairy tale. Nobody invests for love of any country or its people. If hard earned dollars are to be invested, then it is reasonable to expect that at least 25 per cent net profit is being planned after paying the taxes which, if added, will work out to 50 per cent profit. In other words, out of $ 18,000 million investment, this country should be prepared to allow $ 9,000 million profit to be remitted in one form or the other every year. Unless some such clear cut return is available, no foreigner, with all his altruistic talk, is likely to invest his precious money. Therefore, it is necessary that the government should examine the implications of such remittances.

Recently in the Rajya Sabha the Industries Minister said that, on the lines of the Kudremukh iron ore project, these projects will also pay for themselves. Unfortunately, the example of Kudremukh is not a very happy one to mention. The gross foreign exchange earnings of Kudremukh will no doubt be impressive. But from these earnings the country has to pay the foreign investors, the foreign technicians and the American and the Canadian contractors who are working at these mines. After these deductions, very little profit is left for the country. This is not worth the effort. In fact the country is selling its precious iron ore in the Konkan for a song. This amounts to exploitation of cheap labour and our natural resources by foreign capital. I am sure that none in Janata government wants such a thing to happen. But, if they are not very, very cautions, it is bound to happen. In the world business forums, our bureaucratic negotiators are still pretty naive and have not yet mastered the art of striking profitable bargains for our country. The bureaucrat still looks down upon trade as something not quite prestigious and, therefore, does not really master its intricacies.

ONCE BITTEN, TWICE SHY

Again, if the story about the hundred per cent export can be believed, it will be necessary that the steel ministry persuades these benevolent foreign investors to enter into long term purchase contracts duly backed by a bank guarantee or underwritten by the country of the investors. Our country has had sad experience of a scooter project where exports where guaranteed. In those days of early 1972 there was tremendous euphoria about this project and some members of Parliament from the state, in their excitement, hoped to see every farmer in Uttar Pradesh going to his field cn a scooter. It was also believed that scooters made in India would be seen on the express ways of the countries of European Economic Community. Today this famous project is very much a sick concern. Nobody speaks of its exports. Besides, such an obsolete plant was palmed off to India that whatever is produced keeps coming apart and the cost of production is exorbitant. It is not very unlikely if some clever steel magnate is also planning a similar strategy to dump some scrap steel mills on an eager but naive developing country like India. These are serious pitfalls and no amount of precaution will be too much. It is to be hoped our steel ministry experts are alive to these aspects.

WE HAVE THE EXPERTISE

For putting up a steel plant four capabilities are needed: designing, fabrication, erection and commissioning. Though some hyper critical persons may not believe it, we have capabilities in each of these areas. For the last 10 years, our countrymen are being assured that we have mastered steel technology and this country can set up any type of steel mill without foreign expertise or knowhow. In view of this, one is tempted to ask why we go in for this foreign investment after 30 years of independence and ten years of experience in steel? There is abun-

dance of coal and iron and unlimited labour and the country has a whole range of skilled technicians and experts in steel engineering. The value adding operations on these basic natural resources of this country, can surely be done by our own countrymen with our own capital. It is they who should have the opportunity to benefit from such heavy investment and certainly the credit should not be allowed to be taken away by alien experts and investors.

After all what is wealth but accumulated labour. We have resources and we have labour and the required knowhow. If we still prefer to go out of our way and allow foreigners to set up steel mills in our country, surely it will demoralise our steel experts. In fact it appears ridiculous that an Indian company takes up a turnkey project worth over Rs. 1,000 crore for a steel mill to be set up in Libiya and we look to foreign experts and investors instead of using our own engineers and consulting abilities !

We have all the infrastructure and equipment needed for steel plants. The Heavy Engineering Corporation at Ranchi and the Heavy Plates and Vessels at Visakhapatnam are exclusively meant for steel industry. Both these corporations have idle capacity. We can easily ask these corporations to swing in and set up these 40 million tonne gigantic mills, and at any rate with good management they can produce steel at much more reasonable rates than what these foreigners will do. Instead of using the expensive foreign capital we should plan to maximise our foreign exchange earnings by using our own resources.

Serious Imbalance

The theory of paucity of resources cannot hold water. For any worthwhile economic project, there is never any shortage of financial resources. The World Bank gives the softest loans for industrial development in rural areas of the developing countries. If there is need, money can be raised on the stock exchanges of New York, London and Tokyo and I am quite sure it will be duly subscribed. But to allow foreign private investment in such a basic industry is fraught with untold dangers and before the government takes a plunge it will be wise to tread warily with these international monetary sharks.

I have a serious suspicion that even $ 18,000 million will be inadequate. Roughly $ 600 million is the minimum investment needed for a one million tonne steel plant. Today Bokaro's 1.7 million tonne steel plant has cost the country over $ 1,200 million. In the light of this experience, it is difficult to believe that 30 million tonne plants could be set up during the next seven years for only $ 18,000 million. It is more likely to be of the order of $ 25,000 to 30,000 million. Should the country go in for such ventures at such cost ? If I am not mistaken, the sixth plan outlay may not exceed Rs. 60,000 crore. In that case half the plan will be nothing but steel. The next question is, "Should government allow such imbalance, particularly when the government desires to ensure supply of drinking water and improve irrigation and start shipyards and launch schemes to eradicate illiteracy and unemployment in the next 10 years ?" ☐

Need For Social Entrepreneurs

Pran Nath Luthra

THE YEAR 2000 A.D. is not far away. Do the social welfarists dread it, welcome it or have no feelings about it ?

Statistics on social welfare are sadly lacking. It was only in 1975 that the Government of India produced its first ever publication on social welfare statistics. Indications are that the problems have outstripped the remedial efforts. The number of beggars is now placed at over a million, double what it was a decade ago. The number of unemployed has been steadily burgeoning over the years. The earlier estimate of the handicapped was 10 per cent of the population and has now been revised upwards to 15 per cent. Crime has shown continuing expansion while the total of those below the poverty line has shot up from an earlier 40 per cent to 60 per cent of the population. These are indicators of a situation where the malady appears to be beyond the control of its doctors.

It is often asserted, with some truth, that, in absolute times, the progress has been devoured by the exploding population. But it does little credit to the nation's planners that had not taken into account the rate of population growth. It is their duty to discover and find adequate resources to match the expanding population. And as for resources, indigenous and outside, it cannot be said we had or have reached the limits of growth. What then is the reason why we face appalling poverty and degeneration of human dignity, where children are abandoned to become destitute, girls are kidnapped for immoral traffic, the sick, old and the idle turn into beggars or that the healthy and agile choose crime as their mainstay of life ?

Possible remedies are that Government's contribution towards social welfare has to be made more substantial and the basic concept of social welfare should be radically changed from one of relief and succour for the weak and disabled to their development towards self-dependence.

Stereotyped Grooves

It is customary in this industrial civilisation to talk about entrepreneurs. They are self-appointed adventurers who strike out in new fields of industrial manufacture to enhance production and employment. As an association, the entrepreneurs are ceaselessly engaged in discovering fresh possibilities of utilising raw materials with varying technology to meet the needs of the market for goods. If the year 2000 A.D. has to witness less want and suffering among human beings, then it seems necessary that a new class of "social entrepreneurs" should emerge as a matter of urgency. The social entrepreneurs will be concerned with surveying and scrutinising the prevailing syndrome of distress and disability and fashioning social technology to meet the challenge of such distress.

It appears that social workers and the voluntary sector of social welfare has got bogged down in stereotyped grooves. The methodology adopted for treating a situation of 'illfare' is primarily based on providing relief. Distribution of nutrition is an example which only conditions the poor to outside aid. Similarly, the opening of clinics or schools by leaders from outside the world of the needy goes to encourage dependence.

If, in the past, governmental or voluntary efforts have failed to develop the indigent and backward communities, it is because the

leadership was external, resources for a scheme were imported and not developed internally and the schemes were not planned by the needy people. The major lesson of past experience is that development must be planned, executed and achieved by the needy communities themselves. In the decades to come, a radical departure must be made from the prevailing methodology of designing welfare schemes. This was the basic message of Gandhiji who once, when approached by zealous rural social workers, remarked "Don't ask me what to do in the villages; ask the villagers". It is ironically true that with the present shape and purpose of welfare schemes, the authorities and the voluntary agencies achieve what they do not aim at, namely, people's dependence on the *sarkar* or the elite.

And it is not enough to re-orient the draughtsmen of welfare schemes; we have to consider a basic change in the existing system of ownership or control of production that provides the inputs for the poor. The poor agriculturists must not only have land but also a share in the means that produce pesticides, fertilisers or irrigation. The present dichotomy which places the possession of agricultural industry in the hands of urbanites with the agriculturists heavily and perennially dependent on them, is not a pattern conducive to the eradication of poverty. This calls for a major economic change to promote a social change among the needy.

For too long, too many types of healers of social ills have paraded their distinct labels as rural workers, health workers, social workers and the like. It is time they were imbued with a common purpose and a common effort to achieve a common goal. And the goal is not relief or charity for the poor but a developmental one, namely, to help a poor community to develop its own dynamism against its inadequacies. ☐

I have little patience with scientists who take a board of wood, look for its thinnest part and drill a great number of holes where drilling is easy.

—Albert Einstein

NUTRITIONAL FOOD

AVAILABILITY AND PURCHASING POWER

S. C. TRIPATHY

THE PROJECTIONS worked out by an expert committee set up by the Planning Commission, indicate that India's population is likely to reach 695 million by 1981 and 750 million in 1986. The estimated annual foodgrain requirements by 1981 are placed at around 167 million tonnes as against the present annual foodgrains production of around 110 million tonnes, on an average. The increase of food production by addition to the area under cultivation seems to be no longer possible. The answer lies in intensive and scientific agriculture.

This has been the strategy in the fifth plan, especially in the command irrigated area. The growth in the gross cropped area which in the recent past has been around 1.2 million hectares per annum is sought to be nearly doubled during the fifth plan, so as to add nearly 11 million hectares by the end of the plan. In most crops the growth in production is expected to come from growth in the productivity of land by about three per cent a year. Besides improved crop management including more efficient use of valuable inputs like water and fertilisers, a massive programme of integrated area development particularly in the rainfed and drought prone area, is also visualised. The various measures to subserve these objectives, seek to ensure that the rural poor are enabled, through their larger involvement in the development programmes, to raise their standard of living.

Between 1955 and 1965 the net availability of cereals went up by 20 million tonnes, an increase of 46 per cent. But the per capita availability went up only by 10.6 per cent because, in the meantime, the population had shot up by about 25 per cent. And in the case of pulses, a rich source of proteins, the per capita availability came down despite an increase in production. The per capita availability however increased in subsequent years to 498.5 grams in 1974. But this does not reflect the minimum nutritional level of different segments of the people.

Food supplies are inadequate in our country—both quantitatively and qualitatively. In Indian diets there is a preponderance of the consumption of cereals and pulses. Out of 2,016 calories available on an average in the daily diets, cereals provide 1,346 calories, pulses and nuts 216 calories and the remaining comes from sugar, gur, oils, fruits, vegetables, eggs, fish and meat. The total protein supply required per day is about 51.5 grams. The diets in India are mainly deficient in proteins, iron and vitamin 'A' and, due to these deficiencies, the children are most prone to diseases.

FACTORS OF MALNUTRITION

The all-India rural credit survey 1962-63 carried out by the National Council of Applied Economic Research pointed out that about 31 per cent of the rural families are quite poor and are not in a position to have the necessary purchasing power for consuming the requisite quantities of food, needed for a balanced diet. This results in partial starvation. Certain other factors pertaining to inhibitions in the use of nutritive, yet cheap, foods like pulses and green leafy vegetables also come in the way of consumption of a balanced diet. The illiteracy among the rural poor and lack of proper knowledge of nutrition and balanced food among both the rural and urban women is another factor. Considerable losses in the nutritive value of foods occur in cooking and preparation of foods. Then there are problems of under-nutrition and mal-nutrition.

It is estimated that about 15,000 children go blind every year owing to chronic deficiency of vitamin 'A'. On the other hand the diet deficiency in respect of vitamin 'B' causes infantile beri-beri. Vitamin 'C' deficiency gives rise to bleeding of gums, lack of power of resistance and healing of wounds. Rickets a well-known disease is said to be a direct result of vitamin 'D' deficiency. The deficiency of iron and that of calcium, iodine are said to be causative factors for diseases like anaemia, deformation of bones and teeth, and goitre.

It is only in the fourth plan that a systematic attempt started to be made for formulating an integrated nutrition programme with an outlay of Rs. 60 crore. A mid-day meal programme has been introduced for school children and it is estimated that about 15 million children had benefited from this programme by 1971. About 6,000 'balwadis' are carrying out a programme of feeding about two lakh pre-school children. The Ministry of Health and Family Planning has introduced skimmed milk feeding programme through maternity and child health centres and this programme is estimated to cover about five lakh children in the age group of 0-3 years.

During 1970-71 under the Department of Social Welfare a sum of Rs. four crore was provided for feeding one million school children in tribal blocks, and an additional Rs. four crore was earmarked for feeding one million pre-school children in urban slum areas At the village level under the applied nutrition programme, production of protective food like milk, vegetables, fruits, poultry and fisheries is being encouraged.

This is good so far as it goes from a long term point of view, the problem is to increase the purchasing power of the people so that they can afford a balanced diet. It is here that the development of agriculture and industry with close linkages between the two becomes relevant. A suitable mechanism for distribution of food commodities has to be devised so that the minimum of essential food ingredients is made availabe at subsidised rates to all according to the life style of the people. Emphasis needs to be placed on nutrition education.

Requirement of nutritious food for various age-groups in terms of calories is given below

(1) For Children: Age Group

0—6 months	120 calories per kg body weight
7—12 ,,	100 calories per kg body weight
2 to 3 years	1200 calories
4 to 6 ,,	1500 ,,
7 to 9 ,,	1800 ,,
10 to 12 ,,	2100 ,,

(2) For Women

i) doing little work in house 1900+300 if pregnant

ii) doing moderate work in house 2200+300 if pregnant

iii) doing heavy work in house/outdoor 3000+300 if pregnant

iv) in lactation period +700 calories in each category

(3) Men

doing little work in house/outdoor 2400 calories

moderate work in house/outdoor 2800 calories

doing heavy work in house/outdoor 3900 calories

LOCAL CONDITIONS

In India, owing to varying food habits, conventional types of protective foods based on local crop patterns will have to be relied upon and parboiling of rice should be popularised. There has to be a crash programme of fruit and vegetable growing in different regions so that, people with low purchasing power are able to include fruits and fresh vegetables in their diets.

Measures for population control through voluntary means, increase of farm output, and development of subsidiary and small industries in the rural areas particularly in the slack season will help in creating the availability of balanced foods.

The feeding programmes of pre-school and school children need to be enlarged and streamlined and their coverage extended.

Once the standard of living of the vast majority of our population is given the necessary push from below through a massive effort of integrated agricultural and industrialised growth, with accent on decentralisation, the nutrition problem will be overcome.

Possibilities of Clove Growing in India

DR. C. K. GEORGE

CLOVE IS the second most important spice of the world, the first being black pepper. Tanzania, Malagasy Republic, Indonesia and Sri Lanka are the major clove producing countries. During 1973, the world export of clove was about 17,430 tonnes. The largest consumer of clove is Indonesia which in addition to its production of 15,000 tonnes imported about 14,270 tonnes in the year 1973. Clove is utilised in Indonesia for the production of *Kretek* Cigarettes, the most favourite cigarette of Indonesian smokers.

In India this spice was introduced around 1800 by the East India Company in their "spice garden" at Courtallam in Tamil Nadu. Having found it possible to grow in Courtallam, it was planted at Burliar in Nilgiris, southern region of erstwhile Travancore State and the slopes of the western ghats of the old Cochin State during the period after 1850. However, there was no further extension of the area under clove over a long spell. There was also a feeling among the growers and agricultural experts that clove cultivation is an onerous job and it cannot be spread in large areas because of its exacting climatic requirements. This has been proved to be wrong and cultivation is gaining momentum in parts of Tamil Nadu, Kerala and Karnataka. The important clove-growing areas now are Nilgiris, Tirunelveli and Kanyakumari districts of Tamil Nadu, Calicut, Kottayam, Quilon and Trivandrum districts of Kerala and South Kanara district of Karnataka No official estimate on the area and production of clove is available.

Since clove production in the country is insufficient to meet the internal demand, substantial quantities of clove were being imported in the past. The highest quantity of 4,645 tonnes was imported in the year 1950-51. Thereafter the import was reduced every year by imposing restrictions. During 1975-76, only 17.5 tonnes of clove were purchased by the country.

The internal price of clove shot up substantially as the import was reduced drastically. The present price of clove in the international market is only about Rs. 60 to 80 per kg while in India it is nearly Rs. 200 for the same quantity. Due to the wide difference between the internal and international prices, there are reports that clove is smuggled into our country from Sri Lanka and Singapore. Moreover, unscrupulous traders mix spent clove along with good quality clove to earn more profit. Spent clove is the one from which oil is extracted, but it has the normal appearance of clove.

CLIMATIC CONDITIONS

Clove can be grown successfully under our climatic conditions. Although deep forest soils with high humus content is the best for clove cultivation, it can be grown satis-

factorily on laterite soil and clay [illegible]ms [illegible] dr[illegible] [illegible]rib[illegible] 150 to 250 [illegible] every [illegible] growth.

Clove can be cultivated from the sea level up to an altitude of 900 [illegible] but it prefers forest areas [illegible] an elevation of 700 to 900 metres above MSL. From preliminary studies, it is noticed that clove can be grown profitably as an inter-crop in selected arecanut and coconut gardens. Since clove requires shade, it grows well in these gardens. The fragile stem and branches of the tree are protected from heavy wind by the grown up coconut and arecanut trees.

The method of propagation of clove is through seeds. Since the viability of the seeds is only for a short period after harvest, they should be sown in the nursery immediately after collection from the tree. Seedlings of one and a half to two years old are ideal for planting. However, height is more important in selecting seedling for planting. It is found that seedlings of about 30 to 40 cm. height establish easily in the main field than smaller sized seedlings. The spacing adopted for planting is about six metres both ways. Irrigation is provided in the initial stages for early establishment and fast growth. Although the trees can survive without irrigation, it is advantageous to irrigate even grown up trees for proper growth and good yield.

The trees come to bearing in the 7th year of planting. Under ideal conditions, it may give the first harvest even at the age of five years. However, full bearing is achieved only after about 15 to 20 years. The harvesting season is spread out from September to January depending upon the altitude of the garden. A well maintained full grown tree under favourable conditions may give four to eight kg dried buds. The average yield at the 15th year and onwards may be taken as two kg per tree or 500 kg per hectare per annum under normal conditions.

Clove has numerous uses as it is highly aromatic, possesses fine flavour and imparts warming qualities. It is used as a culinary spice in all Indian homes. Cloves both whole and ground are used in baked foods, cakes, confectionary and puddings. Because of its stimulating properties, it is one of the ingredients of betel-nut chew. In Indonesia, large quantities of cloves are consumed by the tobacco industry for the production of special cigarettes. Approximately half of the world production of clove goes to the cigarette industry in Indonesia.

The clove tree is rich in essential oil. Yield of oil obtained through steam distillation is about 16 per cent from clove buds, four to six per cent from clove stems and two per cent from clove leaves. These essential oils are used in perfumes to flavour soaps, as an ingredient of tooth pastes and mouth washes, in medicine to aid digestion, to relieve toothache and for their antiseptic action. All the three types of oils contain about 80 to 92 per cent eugenol which is the starting material in one of the methods for manufacturing vanilla substitute.

Cultivation of clove is highly profitable in India now, because of the high price for the produce. The estimated expenditure in bringing one hectare of clove garden up to its 15th year is roughly Rs. 50,000. The annual maintenance expenditure after the garden has reached full bearing stage is about Rs. 3,500. Since one hectare of clove garden yields about 500 kg dried clove buds, the estimated gross income is around Rs. 1,00,000 at the current market price.

Even though cultivation of clove is highly profitable, large areas could not be brought under the crop. The main bottlenecks for developing clove cultivation are non-availability of quality seedlings, long pre-bearing period, proper care and attention required for young seedlings and lack of scientific knowledge on the culture of the crop. To meet the demand for planting material the state governments of Tamil Nadu and Kerala have a few nurseries established in their progeny orchards or district agricultural farms. The seedling production from these nurseries is quite inadequate and farmers largely depend upon the private nurserymen for their requirements. It is reported that the price of one seedling in a private nursery depending upon its age and size varies from Rs. 10 to 25. This is an exorbitant price and the farmers find it difficult to plant large areas as the investment on the planting material is quite high.

Development Schemes

In order to supplement the efforts of the state governments and improve the availability of quality clove seedlings, a centrally sponsored scheme has been sanctioned for implementation in Tamil Nadu, Kerala and Karnataka. It aims to produce 250,000 clove seedlings and distribute [illegible] rate of one rupee per seedling. The scheme will be implemented through the state departments of agriculture/horticulture.

The Tamil Nadu gove[illegible] considering a scheme for [illegible]lopment of clove in Kan[illegible] and Nilgiris districts with financial help from the agricultural finance development corporation. The physical targets fixed for the two districts is 200 and 300 acres respectively. The government has already sanctioned a scheme for clove cultivation which is being implemented by the forest department under the western ghats development programme. The idea is to raise clove in 100 hectares in the forest areas of Kanyakumari district. In Kerala, the cooperative central land mortgage bank is sponsoring a scheme to give financial help to the growers in the form of long term loans to cultivate clove and nutmeg in 200 hectares in Meenachil and Kanjirappally taluks of Kottayam district.

So far no research in clove cultivation has been done in the country in a systematic way. Although a few schemes mainly on the vegetative propagation of clove were undertaken to reduce the pre-bearing age and to guarantee the performance of planting materials, no method could be standardised. Absence of suitable method for vegetative propagation and limited range of genetic variability are the main lacunae in the improvement of the crop. The Indian Council of Agricultural Research has taken note of the dearth of information on scientific cultivation of clove and other spices and has recently established a full-fledged research station for spices at Calicut.

Clove cultivation in India is in its infant stage. As its cultivation is highly paying and suitable areas are available for its expansion in the southern states and on the Andaman and Nicobar islands, cultivation will catch up fast. Moreover, the farmers are aware of the advantage of clove cultivation and are eager to plant more and more areas. □

Yojana Quiz

1. The International Astronomical Union at a meeting ımed seven lunar craters after Indian scientists. Who are ose distinguished scientists.

2. In 1921 Star of East Film Co. produced the first picture South India. What was the name of the film?

3. Who was Prime Minister of India from 27th May to th June, 1964?

4. The longest mountain system in the world is :

   (a) Himalayas

   (b) Andes

   (c) Pyrenees.

5. How many rooms, chapels and halls are there in the alace at Vatican city, which is the largest place in the world?

6 What does Encyclopaedia mean?

7. How much water is there in the sea?

ANSWERS :

1. Homi J. Bhabha, Jagadish Chandra Bose, Anil Kumar Das, S. K. Mitra, C. V. Raman, Meghnad Saha and Vikram Sarabhai.

2. Bhishma Pratigya.

3. Gulzarilal Nanda (Care-taker Government).

4. Andes.

5. 1,400.

6. En means in, and is added to make the word stronger. Encyclopaedia comes from the Greek word cyclos, a circle and tells us that the book is not only about one thing only, bu goes all the way round knowledge. Last part of the word i English from a Greek word paidea, which means teaching o instructions.

7. The scientists who went on the challenger expedition o 1872—1876 estimated the amount of water in the sea a 323,722,000 cubic miles

Quotation Box

It takes a lot of greatness to acknowledge one's mistake.

—Jayaprakash Narayan

* *

Students join politics for many reasons. Some are hot on the glamour and power that go with the status of a student leader. Some are firmly committed to an ideology for which they would go to any length.

—Hiranmay Karlekar in the Hindustan Times

* *

England is a bum, a little island off the coast of Europe in bad, bad trouble.

—Malcolm Muggeridge

* *

I don't write merely for myself or for a few critics, but for the common reader.

—P. V. Akilandaur

* *

Indian hockey is at crossroads and a patch-up is a must for the survival of Indian hockey.

—Sukhdev Singh Dhindsa
The Punjab Sports Minister

* *

Unfortunately Mr. Morarji Desai has two obsessions—blanket imposition of Hindi and total prohibition.

—Frank Anthony

* *

I have been dropped completely.

—Vijayalakshmi Pandit

BOOKS

District Management

District Administration-A Survey of Reorganisation *by Ishwar Dayal, Kuldeep Mathur and Mohit Bhattacharya. The Macmillan Company of India Ltd.*, 1976; *Pages* 91; *Price Rs.* 30.

DISTRICT administration is the backbone of India's administrative machinery. The book under discussion traces the administrative dysfunctionalities extant in an IADP district in India. It is claimed that the study is an attempt to delineate the various sub-operating systems and their *inter se* linkages, and to find out the nature of transaction with their external environment.

Chapter 2 presents a historical view of district administration. From colonial days to the present, the collector has been the kingpin at the district even though his relative roles have changed from revenue collection to that of a coordinator. His functions are numerous and of late he has to monitor such diverse information, that functional overlap between several departments has become quite common A clear-cut accountability system has yet to be evolved At present the total needs of the villagers are poorly served because for the most of the time the departments are busy sending reports to higher ups. Our reporting system has been designed more for record and less for managerial control purposes. The administrative spectrum gives an interesting portrayal of the linkages in the hierarchical system under various departments. Weakening control of BDOs and overlapping control of the elected, and the administrative systems at the block level are also highlighted in the book.

In chapter, 3, the authors give an alternative design for district administration. Here they question the very rationale behind the existing organisational arrangements. As it is, the task of creating a work team at district level has been almost self-defeating. Using socio-technical systems approach, it is suggested that the structure of the work organisation should be made consistent with the requirements of the task The work needs to be divided for administrative convenience into manageable sub-units. The nature of work (technology), determines the type of social organisation required for the job done " . . the administrator cannot achieve results unless he is able to manipulate the variables that are critical to the performance of the task" (p. 48). District management constitutes three sub-systems; production tasks, ministration tasks and protection tasks. Each of the sub-systems would need control over what is labelled, the import-conversion-export functions. For implementing the new system, there is need for liberal budgetary systems for local authorities, greater autonomy to district officers and a conscious attempt to define roles and relationships between the representative and the administrator at the grass-root level. It is observed that the upward shift or authority from district to state department should be checked and experienced hands be posted as district collectors so that better overall coordination could be achieved.

The book has brought into sharp focus the many functional disharmonies that pervade in the lower rungs of our district administration. The dualistic tern of evolving policy decisions at the one end its implementation at different levels leads to ind rence as these are not routed through the same lin command The district collector sits around a n of half-baked data sets presented by several dysf tionalities, which serve little purpose. "The dep mental functionaries look for their rewards beyond district collectorate, and the directorate in the S Government indeed function as if they were dire responsible for the performance of the functional in the field" (p 48). In brief, the intricacies invo in district management and invisible forces at w therein have been brought to the fore in the book admirable clarity and competence. Three append given at the end add lustre to the narration of adm trative cobwebs On the whole, it is a refreshing p of work Administrators and students will find useful to understand and appreciate the issues invo in district management.

—N. Moh

Manpower Planning

Unemployment and Employment Policy in India *by Jitendra Dholakia, Published by Sterling Publis Pvt Ltd AB/9 Safdarjang Enclave, New Delhi-110 Pages 78, Price Rs 20*

YOU can lead a horse to the water, but you c make him drink Well, that is what has happ to the unemployment problem, Inspite of massive vestments both in public and private sectors, the h malady of unemployment has been like a knife p ing at the heart of the people It is puzzling that volume of unemployment instead of decreasing has increasing throughout the planning period. Altho the term "unemployment" is normally applied those without work, we cannot ignore cases w employment is only partial, resulting in under-emp ment.

Because of the substantial volume of unutilise under-utilised labour, the large section of our wo population in both urban and rural areas subsist income which is neither continuous nor adequate only this, the unemployed and under-employed India are a burden on their families and relatives generally belong to the acute poverty ridden s groups This indicates that there is a certain kin social fund which takes care of the unemploye which no contribution is made by the affluent sec of the society. But, social justice demands that responsibility of the unemployed and under-empl from poor families is taken up jointly by the Gov ment and the richer sections of the society.

Moreover according to Mr. Dholakia in a la surplus country, like India economic planning necessarily be employment-oriented. He has an ed in his book the various criteria for assessing employment, the modus operandi of employment-o tation of planning in India, the approach of expert estimates of unemployment and the causes of un loyment in the rural and urban areas. He has also plained the paradox of positive rate of growth ass ed with rising rate of unemployment in India He a that in the Indian economy, planning for full em ment would require planning for investment, tech change and generation of output.

The author emphasises that only by ending paradox of unwanted men and unfinished tasks economic development, can one hope to make a in the problem of unemployment. The book

tends that the economic development plans in India can be made more employment-oriented by changing the product-mix and technique of production. Product development and innovative assimilation can contribute significantly to maximise employment effects of investments. There is need to develop an optimal employment-intensive technology. Employment-creation can also be done by means of a massive programme of rural works. Budgetary creation of employment and rationing of jobs in accordance with the criterion of poverty or income could be integrated into the overall strategy of planning for employment and growth

The author has also made a study of specific programmes for promoting productive employment in the rural and urban areas and the various constraints of a partially planned economy in India. The data on employment and unemployment among the alumni of the Gujarat University, job performances of the graduates and vocational aspirations of the students provides some valuable guidelines for manpower and educational planning. Considering the size of the book and its get up, the price is indeed high. Perhaps, this is how things are in the publishing trade.

—**Nitish S. Rele**

What Ails Our Economy ?

Readings in Applied Economics *by N.C. Joshi; Published by Vivek Publishing Company, Delhi*-110007, *Pages* 272; *Price Rs.* 48.

THIS book as the author observes in the preface discusses certain critical issues relating to economic problems of developing countries with particular reference to India. An attempt is made to present current economic problems in their 'proper perspective' and the author believes that if proper approach towards their solution is developed, half the battle would be already won

The book is divided into nine chapters besides four appendices and tables some of which could well have been incorporated in the main text, if only, to improve the statistical support to the analyses and observations noted in the book The students, however, will find the appendices particularly useful. The first three chapters including the introduction cover the general aspects of development such as economic growth, regional approach, manpower planning, project evaluation, structural and sectoral aspects, poverty and incomes policy The next four chapters deal with agriculture, industry, infrastructure (mainly money and banking) and rural development. In the last two chapters, the author reverts to the problems of macro-economic planning and development including finances for the plans, inflation, pricing, external trade and evaluation of foreign aid There is some overlapping in the matter presented in the chapters.

If this book is intended to provide supplementary material for students of applied economics, the author succeeds in good measure. Prof. Joshi's writings on present day economic problems are generally the envy of good economic journalese However, in presenting the discussions that are easy on mind, one wishes that he had given a more detailed analysis of the specific problems. In compressing wide array of facts the simple need of presenting conclusive evidence is some times overshot and observations which are of immediate policy and operational significance tend to be obscured. Such instances, for example, are noticed in the treatment of project evaluation, particularly with reference to the much debated and also much abused use of 'shadow' prices, the 'core' cost concepts mentioned in the chapter on industry, the confusing relationship between profits and efficiency in the pricing policy of public enterprises, where again the shadow price concept creeps in without anyone being wiser about the makeup. To an extent, such situations are perhaps unavoidable especially while presenting 'impressionalistic analysis' as the author himself acknowledges.

Planners and Planning Economists have not been spared by the author when he observes that they have generally concerned themselves with the immediate issues arising from the formulation of bold plans rather than with the basic problems of the economy. A dichotomy between large scale and small scale sectors was created on wrong premises without any evidence to relate alternate paths of industrial process to growth of agriculture, employment and development of backwards areas. A plea for redefinition of industrial priorities is advanced as also that industrialisation should be more directly related to welfare and employment—features of the new planning strategy which are even now being warmly debated. The argument however stops there without indicating the further steps considered necessary to achieve such ends or to evaluate existing measures and their inadequacies. Even so, the facts and views presented in this volume are of interest to students and economic administrators alike.

—**K. S. V. Sanjeeva Rao**

Women in Construction Works

Women Construction Workers *by G. P. Sinha and S. N Ranade. Published by Allied Publishers, New Delhi, Pages* 92, *Price Rs.* 10.

THE Book under review carries the findings of two studies on women construction workers undertaken in Delhi and Bihar in 1975 The Delhi exploratory survey includes 150 women construction workers selected from nine major construction sites of the capital The Bihar report is based on survey of women workers employed by the two major construction projects in and around Patna namely, the Ganga Bridge Project and the Storm Drainage Scheme. While the Delhi study covers mainly workers in private construction projects, the Bihar study concentrates entirely on workers in government projects

The monograph highlights the contribution of women construction workers to the national economy. The surveys also help to explode the myth that women do not engage in occupations which involve hard and arduous physical labour. These two studies which are exploratory and illustrative rather than exhaustive also bring into focus the pitiable and horrible living and service conditions of this category of workers. Because of the unorganised nature of this labour, attempts to protect these workers—whether by law or official regulations—generally end in futility.

The two studies contained in *Women Construction Workers* will help to stimulate greater interest in the problems of this group of women workers among social scientists and welfare agencies. The grim nature of the findings calls for immediate measures to ameliorate and improve their living conditions.

—**Pritam Lal**

Development Notes

Copper Ore Deposits In Karnataka

Copper ore deposits have been detected over a "strike-length" of 1,100 metres in kallur, about 20 km from Raichur. Eight boreholes had been completed to examine the nature of the ore and also the grade at depth. According to preliminary estimates, the reserves are of the order of six million tonnes. The average grade of the ore works out to 0.8 to one per cent per tonne which is commercially exploitable. This was the fourth deposit found in Karnataka. The other three sites were Ingaldal in Chittadurga district, Kalyadi in Hassan district and Thinthini in Gulbarga district.

The state government is taking concerted steps for the development of this precious deposit. At present the Chittadurga Copper company is converting the copper ores into concentrates at Ingaldal and Kalyadi and supplying it to the Copper Corporation of India. Plans are also afoot to set up a copper smelter plant in the state.

The Department of Mines and Geology has also unearthed, 'kynite', one of the important refractory minerals, near Sulya in South Kanara. The mineral ore is believed to be spread over a 250-square km area and the deposit is estimated at 60,000 tonnes.

Cotton Production in Nagarjunasagar Area

The Nagarjunasagar project area of Andhra Pradesh holds the prospect of becoming a "mini-Egypt" in the coming years, taking the country to near self-sufficiency in extra-long staple cotton. The project area comprising parts of Prakasam, Guntur and Krishna districts has been found most suitable for the cultivation of 'Suvin' which is comparable to the best varieties like Giza-45.

In view of 'Suvin' emerging as an effective substitute for imports a campaign was organised for 'Suvin' Cotton Development in Tamil Nadu and Andhra Pradesh in 1975-76. The total area covered by the scheme was 30,000 acres in Andhra Pradesh and 12,000 acres in Tamil Nadu.

World Bank Aid to Farm Varsity

The World Bank has sanctioned an assistance of Rs. 395 lakh to Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV) at Jabalpur, Madhya Pradesh for further development and upgradation of its seven research stations and five sub-stations. The assistance is for strengthening research work in progress on various crops and different aspects of cultivation and agricultural management at Jabalpur, Indore, Gwalior, Rewa, Sehore, Powarkheda and Chhindwara and sub-station at Khandwa, Mandsaur, etc. Selection of these places has been made to cover all the main crops and agro-climatic zones of the State.

Cashew Cultivation to be Extended

The Kerala state government proposes to extend cashew cultivation to an area of 20,000 hectares this year and has provided Rs. 28 lakh in the current year's budget for payment of subsidy to the cultivators. At a seminar on "cashew with accent on infestation", organised by the Export Inspection Agency Cochin, it was stressed that possibility of increased production of cashew sufficient to cater to the requirements of more than 200 factories employing 125,000 workers in Kerala alone was not a distant dream.

The State Government's programme comprises distribution of two million cashew seedlings free of cost and giving subsidy to the small cultivators.

Marked Upsurge in Exports

Both traditional and non-traditional exports showed a big increase in 1976-77 compared to the previous year. Tea export increased from 212 million kg worth Rs. 237 crore to 243 million kg, worth Rs. 293 crore, oil-cakes from 1,059,000 tonnes valued at Rs. 96 crore to 1,727,000 tonnes worth Rs. 224 crore, cotton piece-goods (mill-made) from 423 million sq. metres valued at Rs. 122 crore to 562 million sq. mts worth Rs. 210 crore in this period.

Other items, the export of which rose, were coffee from Rs. 67 crore to Rs. 114 crore, fish from Rs. 127 crore to Rs. 180 crore and tobacco from Rs. 93 to Rs. 97 crore. Total exports increased from Rs. 4,043 crore to Rs. 5,089 crore in this period.

Among the non-traditional items handicrafts export increased from Rs. 252 crore to Rs. 402 crore, engineering goods from Rs. 413 crore to Rs. 554 crore, cotton apparel from Rs. 146 crore to Rs. 257 crore, iron and steel from Rs. 68 crore to Rs. 283 crore and chemicals and allied products from Rs. 85 crore to Rs. 109 crore.

Four-fold Increase in Engineering Goods Exports

The export of engineering products from the country touched Rs. 552 crore during 1976-77 representing a four-fold increase from a mere Rs. 141 crore in 1972-73. The exports of these goods during 1975-76 were of the order of Rs. 408 crore. In the overall export value of engineering goods, the capital goods sector occupies a significant place with its share of Rs. 178.1 crore during 1976-77 against Rs. 154.5 crore in the preceding year. In the capital goods sector the export of industrial plants and machinery was of the order of Rs. 42.2 crore during the period under review.

Electrical power machinery and switch gears also constitute a dynamic line of export among the capital goods industries with its export performance at Rs. 15.8 crore compared to Rs 14.9 crore during 1975-76. The export of transmission line towers and poles fetched Rs. 9 95 crore in 1976-77 as against Rs. 735 crore in the previous year. Machine tool exports more than doubled from a level of Rs. 8.4 crores to Rs. 18.1 crores during 1976-77. Likewise the exports of automobile parts also registered a substantial increase from a mere Rs. 18 crore in 1975-76 to Rs. 23.3 crore in 1976-77.

The Wisdom of Schumacher

NOW, at the risk of being misunderstood, I will give you the simplest of all possible examples of self-help. The good Lord has not disinherited any of his children and as far as India is concerned he has given her a variety of trees, unsurpassed anywhere in the world. There are trees for almost all human needs. One of the greatest teachers of India was the Buddha, who included in his teaching the obligation of every good Buddhist that he should plant and see to the establishment of one tree at least every five years. As long as this was observed, the whole large area of India was covered with trees, free of dust, with plenty of water, plenty of shade, plenty of food and materials. Just imagine you could establish an ideology which would make it obligatory for every able-bodied person in India, man, woman and child, to do that little thing—to plant and see to the establishment of one tree a year, five years running. This, in a five-year period, would give 2000 million established trees. Anyone can work it out on the back of an envelope that the economic value of such an enterprise, intelligently conducted, would be greater then has ever been promised by any of India's five year plan. It could be done without a penny of foreign aid; there is no problem of savings and investment. It would produce foodstuffs, fibres, building material, shade, water, almost anything that man really needs.

Centralisation is mainly an idea of order; decentralisation, one of freedom. The man of order is typically the accountant and, generally, the administrator while the man of creative freedom is the entrepreneur. Order requires intelligence and is conducive to efficiency, while freedom calls for, and opens the door to, intuition and leads to innovation.

Socialists should insist on using the nationalised industries not simply to out-capitalise the capitalists—an attempt in which they may or may not succeed—but to evolve a more democratic and dignified system of industrial administration, a more humane employment of machinery, and a more intelligent utilisation of the fruits of human ingenuity and effort. If they cannot, they have nothing to offer that is worthy of the sweat of free-born men.

For it is not private ownership but private ownership divorced from work which is corrupting to the principle of industry; and the idea of some socialists that private property in land or capital is necessarily mischievous is a piece of scholastic pedantry as absurd as that of those conservatives who would invest all property with some kind of mysterious sanctity.

To sum up:

(a) *In small-scale enterprise, private ownership is natural, fruitful and just.*

(b) *In medium-scale enterprise private ownership is already to a large extent functionally unnecessary. The idea of 'property' becomes strained, unfruitful and unjust. If there is only one owner or a small group of owners, there can be and should be a voluntary surrender of privilege to the wider group of actual workers, as in the case of Scott Bader and Co. Ltd. Such an act of generosity may be unlikely when there is a large number of anonymous shareholders, but legislation could pave the way even then.*

(c) *In large-scale enterprise, private ownership is a fiction for the purpose of enabling functionless owners to live parasitically on the labour of others. It is not only unjust but also an irrational element which distorts all relationship within the enterprise.*

NATIONALISED enterprises providing public services should always aim at a profit—in the sense of eating to live, not living to eat—and should build up reserves. They should never distribute profits to anyone, not even to the government. Excessive profits—and that means the building of excessive reserves—should be avoided by reducing prices.

Even if the rich are not idle rich, even when they work harder than anyone else, they work differently, apply different standards and are set apart from common humanity. They corrupt themselves by practising greed, and they corrupt the rest of society by provoking envy.

It is often thought the public interest can be safeguarded in the conduct of private business by delegating top or medium-grade civil servants to management. This belief, often a main plank in proposals for nationalisation, seems to me to be both naive and impractical. It is not by dividing the responsibilities of management but by ensuring public accountability and transparency that business enterprises will be most effectively induced to pay more regard to the public interest than they do at present. The spheres of public administration on the one hand and of business enterprises on the other are poles apart—often even with regard to the remuneration and security offered—and only harm can result from trying to mix them.

ALL THE indications are that the present structure of large-scale industrial enterprise, in spite of heavy taxation and an endless proliferation of legislation, is not conducive to the public welfare.

'Small is Beautiful'

I Hate Privilege and Monopoly

ORGANISATION OF MACHINERY for the purpose of concentrating wealth and power in the hands of a few and for the exploitation of many, I hold to be altogether wrong. Much of the organisation of machinery of the present age is of that type.

Machinery and modern industry, Mr Gregg truly says, have taken the money of millions of people and concentrated its management and control into relatively few hands and modern development of banking and credit have concentrated the control of all the materials and factories [illegible] fewer hands.

Do we not see the pres[illegible] our own country at the cost of the million [illegible] ing blood whom in order to support [illegible] thousands of miles away from [illegible] aptly says Mr Gregg the real [illegible] nations of Europe, America and [illegible] Africa is concentrated in the hands of [illegible] men perhaps fewer [illegible] temptation which [illegible] It involves [illegible] countries [illegible] security [illegible] dence degradation [illegible] respect on the other.

Another [illegible] made to obey [illegible] classes become helpless [illegible] the classes [illegible] they also become helpless [illegible] cannot make his own [illegible] his own food. The city [illegible] country industrial nations upon [illegible] Those who live in temperate climates [illegible] parasitic upon tropical peoples [illegible] upon the peoples they govern, anim[illegible] Along with this [illegible] irrespon[illegible] The industrial [illegible] issues all those in Europe which [illegible] the lives of Negroes in Central Africa.

The consumers too are no better. They [illegible] to feel the responsibility. 'When I,' exclaims Mr Gregg, 'seated in a restaurant in France, put some pepper in my soup, do I stop to think what poor coolie in Java perchance suffered the hardship of gathering it while subject to a fever, and perhaps to the indignities and brutality of harsh plantation supervision?'

I must, however, resist the temptation to quote more from this instructive letter. That use of machinery is lawful which subserves the interest of all.

There is a tremendous fallacy behind Mr Ford's reasoning. Without simultaneous distribution on an equally mass scale, production can result only in a great world tragedy. Take Mr Ford's cars. The saturation point is bound to be reached, soon or late. Beyond that point, the production of cars cannot be pushed. What will happen then?

Mass production takes no note of the real requirement of the consumer. If mass production were in itself a virtue, it should be capable of indefinite multiplication. But it can be definitely shown that mass production carries within it its own limitations. If all countries adopted the system of mass production there would not be a big enough market for their products. Mass production must then come to a stop.

[illegible] Mr Ford's favourite [illegible] remotest corner [illegible] thousands of [illegible] factories [illegible]

[illegible]

[illegible] because when [illegible] machines [illegible] one selected [illegible] be found [illegible] limitless power [illegible] think of it. The [illegible] of power [illegible] this power for [illegible] would [illegible]

[illegible] Russia [illegible] developed mass [illegible] sense, the less [illegible] taking into its [illegible] controlled industry [illegible] economic order in which both production and distribution are controlled and regulated by the state as is being today done in Soviet Russia. Well, it is a new experiment. How far it will ultimately succeed I do not know. If it were not based on force, I would dote on it. But today since it is based on force, I do not know how far and where it will take us.

So you are opposed to machinery only because and when it concentrates production and distribution in the hands of the few,' finally summed up the American friend.

'You are right,' I replied. 'I hate privilege and monopoly. Whatever cannot be shared with the masses is taboo to me. That is all.'

—MAHATMA GANDHI

Printed by the Manager, Govt of India Press, Ring Road, New Delhi 110064 and Published by the Director, Publications Division, Patiala House, New Delhi-110001

Thank God, We are Inefficient

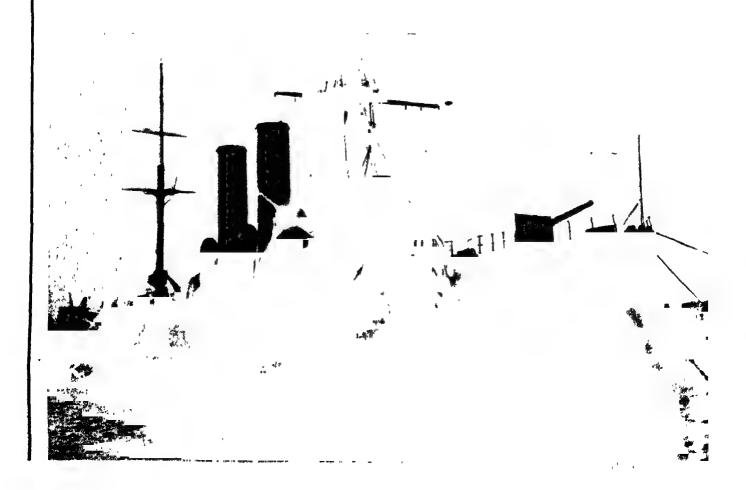
A Nation at the Crossroads

LENIN : ICON OR AN IDEA ?

THE GUNS OF AURORA

Only the Winter Palace occupied by the Junkers was firmly in the hands of Kerensky when the uprising began at 2 a.m. on November 7. The telegraph and telephone exchanges had already been occupied besides other palaces. The Bolshevik Central Committee was in continuous session at Smolny directing the operations. Attempts to re-take the telegraph building were repelled by the Red Guards. The sailors from the Baltic fleet occupied the state bank and other government buildings. The cruisers, *Aurora* and *Amur* sailed up the Neva in preparation for the assault on the Winter Palace.

It was 10 a.m. when the Bolsheviks formally proclaimed the overthrow of the provisional government. Within an hour the political prisoners were set free. At 2.35 p.m. the Petrograd Soviet began its session at Smolny. There was delirious enthusiasm when Trotsky announced that the provisional government had ceased to exist. Lenin appeared in public.

By 6 in the evening, the Winter Palace had been surrounded. At 9.40 p.m. came the crash of *Aurora's* warning shots at the palace. At 11 p.m. the final assault began with the guns of *Aurora* blazing away while the Red Guards and the workers from the Putilov factories stormed the palace. By one in the morning the palace fell and all the ministers were arrested. The Junkers were disarmed. The revolution had been accomplished.

YOJANA

Volume XXI Number 19

New Delhi

1 November, 1977

10 Kartika 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan but is not restricted to expressing the official point of view

Chief Editor

K. G. Ramakrishnan

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Editorial Office. Yojana Bhavan, Parliament Street, New Delhi-110001. **Telegraphic Address:** Yojana, New Delhi **Telephones:** 383655, 387910, 385481, extensions 402 and 420 **Circulation:** Business Manager, Publications Division, Patiala House, New Delhi-110001

Subscription: Annual—Rs. 18. Two Years—Rs. 30 Three Years—Rs. 42. Foreign Subscription: One years—£2 70 or $5.50. Two years—£4 50 or $9.00. Three years—£6.30 or $12.0 Single copy—Twelve pennis or $ 0 25

In Russia at last! Whichever way I look, I am filled with wonder. It is unlike any other country. It is radically different. From top to bottom they are rousing everybody up without distinction

Rabindranath Tagore

A Continuing State After Sixty Years

COMMENTING ON THE concept of the state "withering away", Lenin said that Engels had made it clear that in seizing state power, the proletariat "abolishes state as state"; that is, the proletarian revolution abolishes the bourgeois state. Lenin gave this meaning a further and abundant clarity by saying that Engels' words "about the state withering away refer to the remnants of the proletarian state after the socialist revolution".

Let us understand the distinction made by Lenin. He wrote, 'According to Engels the bourgeois state does not wither away but is abolished by the proletariat in the course of the revolution. What withers away after this revolution is the proletarian state or semi-state".

It would be useful, in this context to go to Engels himself. He said, "The first act in which the state really comes forward as the representative of society as a whole—the taking possession of the means of production in the name of society—is at the same time its last independent act as a state. The interference of state power in social relations becomes superfluous in one sphere after another and then ceases of itself The government of persons is replaced by the administration of things and the direction of the process of production. The state is not 'abolished', it withers away It is from this standpoint that we must appraise the phrase 'free people's state'—both its temporary justification for agitational purposes and its ultimate scientific inadequacy—and also the demand of the so-called anarchists that the state should be abolished overnight.".

LENIN ACCEPTED, elucidated and hoped to establish this theory adequately. His tragedy was that he died far too suddenly In a different (antithetical) context, Churchill said, "He (Lenin) alone could have found the way back to the causeway. The Russian people were left floundering in the bog". Though very few will agree with Churchill that the Russians' worst misfortune was Lenin's birth, there is great truth in his saying that their misfortune was his death when it came.

It is the misfortune not of the Russians alone, but of mankind He alone had both the completest grasp and the greatest opportunity of taking Marxian theory to its logical and enduring stage. But he was not allowed to do so by international conspiracy, the compulsions of establishing the proletarian state and his premature death, barely six years after he founded the world's first socialist state.

Lenin's decree on peace and open diplomacy, his profound commentaries on the irrelevance as well as the great danger of using state power in the intimate life of the people affecting their inalienable sentiments and emotions, his firm rejection of one-sided presentation of a case as anti-dialectical, his efforts to give the concepts of democratic centralism and inner party democracy flesh and life—all pointed to his impatience to move on to the goal of communism Thus did he say, "Polemics is the essence of socialist journalism" "We do not want to have people driven into paradise with a cudgel". "They (the Russian democrats) do not recognise national oppression in any form, even in the interests of Russian culture and statehood."

Lenin's difficulty was that, in the historical circumstance, he had to lead a particular revolution which undoubtedly, shook the

basis of the entrenched tyranny of the day—and not in sprawling Russia alone. Very probably he realised his messianic proportions—though, as Mayakovsky says, he was the embodiment of simplicity—and was concerned about the chance of degeneration of Marxian theory in the hands of lesser men without the kind of leadership which he himself provided. But he could not wait till he was certain of the continuum. And it was fortunate that he did not wait, for Lenin and his work constitute a priceless treasure of human heritage.

SOME OF HIS writings in the last stages of his life and mission suggest a gnawing concern over a new vested interest in the proletarian state and the party structure. Not merely this state might establish itself and not go through what he called "leaps and storms" leading to "withering away". More importantly, while the working class might reconstruct the economy, it might not either revolutionise society or advance to its next higher stage.

Lenin's writings on "parasitic state" could be read in this context. The distortion of Lenin's concepts of liberty in a socialist society, the wholly untenable assertion of mercenary "economism" as the core of "materialism", the perverse rejection of Lenin's unassadable belief in the growth of the human personality—all this has led to a total extinction of democracy either in centralism or inside the party and to an increasing rationale for the continuance of parasitic state against which, in essence, Sakharov and the like are probably fighting The argument that international power balance makes for the strengthening of the state negates the basis of Marxian theory that the people—liberated from class rule—can be more effective than the state. This is what Mao tried to establish, what was demonstrated during the Civil War and the period of intervention after the October revolution and recently in Vietnam

"NO POWER, no state"—the Gandhian ideal—was implied in Marx but Lenin did not see any contradiction, as did Gandhi, in the use of the state power to destroy the state itself Lenin took Marx too seriously to reduce him to scriptural proportions. Russia's destitution in Czarist decadence led Lenin to fashion a brilliant strategy which combined the rising tide of proletarian revolutionary fervour with the intellectual and moral heights of the Bolshevik pantheon. At the core of this strategy was the vanguard theory. Lenin's seeming violation of the principle of democratic centralism when he appealed to the larger Bolshevik conscience over the head of the Central Committee during the closing stages of the struggle was no violation at all; he was not usurping the functions of the Central Committee but retrieving it from authoritarian timidity and non-accountable inaction

Very soon, faced with the reality of an emerging oligarchy, Lenin began thinking of the cultural basis of the new society. He was thinking of utilising a new and liberated elite to counter the incipient degeneration of the revolution. The effulgence of Lenin's selflessness was a guarantee against degeneration while he lived By this time he had written millions of words. He had little time to subject his experience to a fresh enquiry. Had he lived a little longer, he would doubtless have led a new revolution against his own state, as Mao tried through the cultural revolution. Lenin would have carried Marxian dialectics to a new height. The "ten days that shook the world" gave us ample idea of where Lenin would have gone from "here", had he lived. His crusade against Great Russian chauvinism had already marked him out against the tyrannies inherent even in the vanguard theory. While he was impatient for giving his people good and decent life, he was preparing for the next stage when he died. That stage was the interpretation of Marx in what subsequently became Maoist language, namely, that economism as the sustenance of the revolution might destroy the revolution itself While the "evangelism" of his purpose led him to seek an altering of the material circumstance, he stood for that which "touched the people to their very souls".

EUROPEAN COMMUNISM'S reappraisal of the theory of proletarian dictatorship may be more basic than tactical. The rebellion against consumer society which is making man incidental to social theory may be seeking a messiah. The world may be groping for a Lenin.

Despite the many subsequent opportunisms in the world politics of balance of terror and involvement in the politics of manipulation, the socialist revolutions of Russia and China continue to be landmarks in the evolution of human society It is this evolution which will overcome the nuclear challenge called by Schumacher as the ultimate transgression

That the state, far from withering away continues to grow from strength to strength, does not call for a repudiatation of Marx, Engels and Lenin. What it calls for is a reappraisal of sixty years of Soviet history in order that this great land of revolution may again show the way for further "leaps and storms", to use a characteristic Leninist expression

A Nation at the Crossroads: Challenge Before Mr. Justice Shah

"AS GREAT disorder shapes up perceptibly under the Indian skies"

Thus begins a leading article in India's national daily, *The Hindu*. This newspaper, not generally known in recent years for forthrightness in the cause of Indian democracy, seems to have got back something of the elan of its earlier days. Even so, the prudery of its middle class clientele might have been somewhat shocked by the title of the editorial, "Cut the Cackle and Come to the 'Osses". Nor is this middle class likely to heed *The Hindu's* advice to all good men in politics "to take their eyes off narrow or short concerns".

Yet this is precisely the task and challenge before the broad spectrum of democratic political opinion in India. After the epochal events of March, when (to quote *The Hindu*) "three decades of Congress rule came to an abrupt and ignominious end" and the emergence of a new regime "appeared to signify the beginning of a new political era", besides representing "a resounding, if not stunning repudiation of authoritarian rule by the common people", who "having registered

their anger against the old regime" looked towards the new "with a mixture of joyous hope and slightly puzzled expectation", we are finding that "these hopes and expectations are being dissolved before our very eyes".

If the Janata Party and its government move from indecision to indecision and from inanity to inanity, he attempts by Smt. Gandhi and those close to her (who "have a great deal to answer for before the people and, where necessary, before the law courts") o "pose themselves as much wronged champions of lemocracy, social justice and the weaker sections of society" are neither "convincing" nor taking them anywhere.

RIGHTLY ASKING the Janata party to answer honestly the question of how well it has faced 'the challenge of development in a country with huge esources and with the great advantage of having the econd largest population in the world", this newspaper —promising to regain its status as a great national nstitution—has told our politicians of every party to eed the lessons of neighbouring Pakistan. It may be hat "India is in a happier position" than Pakistan where, "in the absence of a strong, freewheeling parliamentary tradition and experience, the explosive situation had to gravitate towards those who wielded the uns". But we cannot forget that only recently we did ravitate towards those who wielded the *danda*. As *The Hindu* has pointed out, "there is no reason at all o be complacent". The paper says (and it is difficult o disagree) : "The experience of third world countries as repeatedly demonstrated, during the last three decades, that the politics of confrontation among mere ndividuals, of parliamentary drift and of puerile demagogy, accompanied by the gross neglect of tackling asic development issues imaginatively, is fraught with he danger of a lurch into civilian politics by the bystanding military And it is by now well known, once n nearly always in".

The threat may not be as near and serious as *The Hindu* would have us believe But it will be good for oliticians to read in time the writing on the wall. Cowardice, caution, cleverness, gimmickry, postures of adicalism or pristine purity, shadow-boxing and quixotic tilting at the windmills, protestations of innocence f evil leading to proclamations of loyalty to the evildoer, fear of speaking out the truth before the people, he courts and the commissions, senseless vengefulness nswered by equally senseless violence, the wasting of ational energies in populist demonstrations of support nd opposition—can we afford this luxury while a ation at the crossroads is anxiously hoping for the sustenance of popular democracy ?

THIS IS not the time for ideological refinement or for personal or party loyalties. This is the time or a national consensus on basic issues of constitutional, educational, electoral, police and administrative evolution, of a programme of emancipation of the eople from poverty, drudgery, ignorance, squalor, isease, injustice and tyranny, of the participation of he mass of the people in this programme of emancipation—in short of meaningful democracy.

The lead should come from men like Jayaprakash ; qually from the magnanimity of the ruling party which, hile pursuing steadfastly the exposure, trial and punishment of the cabal that tyrannised over the people, should set the pace and tone of national reconciliation and federal cooperativeness. This is possible only if the leaders abandon the postures of all-knowing messiahs and approach their tasks with the utmost humility and dedication.

Quite appropriately, *The Hindu* has referred to "the serious impact" of recent events on the functioning of the Shah Commission "which with the enormous material and resources under its command has given evidence already of its potential to come speedily to grips with the larger and essential questions involved in emergency rule". Evidence suggests that Mr. Justice Shah had expressed his concern to the Prime Minister, in the context of a national duty which he had undertaken, at some personal cost in terms of health, time and money—at his advanced age—in the best traditions of the Indian judiciary. He explained at the start of the open hearings that he was not concerned with guilt and indictment but only with finding out the truth to the extent possible in relation an extraordinary period of our recent history. His purpose, clearly, was the strengthening of the fabric of our polity with its cherished traditions and institutions. With the groundwork already done and with the tone set by the first few days of judicial enquiry, sober public behaviour in the Commission room and responsible newspaper reporting, one may still hope that everyone will be eager to help this great and good judge in his task of enduring national consequence.

WHAT THE government does is its business and the Commission is certain not to be swayed by the passing winds of current day controversy. But the government, as much as the witnesses, owes the Commission a duty to do nothing which will interfere even remotely with its historic task of correcting the perspective of our democratic concerns.

—R. K. (11-10-1977)

Farakka Agreement

IT IS a tribute to the political courage, statesmanship and world view of the leadership that the Farakka agreement has been signed. Shri Jyoti Basu's reactions are on predictable lines but the chief minister has not succumbed to the temptation of rousing uninformed local emotion, unlike his predecessor. The fact that Shri Desai got more for India than Smt. Gandhi did is unnecessary to stress, because this will take away from the spirit in which an international understanding was reached, which may well be a pace setter for the settlement of disputes between countries. Smt. Gandhi's outbursts cannot dictate public policy and, fortunately, they have not interfered with a sensible decision.

The agreement cannot be measured in terms of how much we secured but in terms of how much we were prepared to accommodate, being the larger of the two negotiating parties—a thought which the communists may do well to cherish in this year of the diamond jubilee of Lenin's accomplishment.

The importance of Calcutta port need hardly to be stressed, for the saving of the port is a national responsibility. Except for a mischievous fringe nobody in Bengal thinks that Calcutta is anything less than India's premier city and a port of national importance. The Farakka agreement may not seriously jeopardise the efficiency of the port but government may be expected to offset any temporary difficulty by an appropriate remedy.

India's stake in Afro-Asian unity apart, the psychological impact of the agreement on a whole range of problems with our neighbour will far outweigh any

possible material damage which, in any event, is not such as cannot be repaired. A section of the leftist press in India had previously taken government to task for not honouring the commitment to Bangla Desh. The objection cannot come from that quarter. The slogan of surrender raised by some ignores the bold manner in which the international forces of "destabilisation" in the region have been thwarted !

Multinationals

SHRI CHARAN SINGH'S firm stand against multinationals and collaboration agreements and simultaneous leftist enderism of another minister whom they had earlier sought to hold up as their model would, in some measure, indicate the phoney nature of the political and economic debate in this country. Leftist criticism of the projected breaking up of the FCI on grounds of civil service lure for fancied foreign technology adds to the general irrelevance of the left-right differentiation. The CSIR debate has also not helped us understand who stands for what

Some recent bureaucratic announcements of agreements with the World Bank have received a mixed reaction, as is to be expected

In any event it is naive to think that aid—from international bodies or individual countries—does not carry with it strings. Collaboration agreements on a turnkey basis created their own distortions. Devaluation under pressure did not bring with it the rudimentary appreciation of the logic of dependence.

The mischief in "aid mentality" is that it predetermines economic and social policy. Very often aid and collaboration are in areas where they are hardly necessary.

Self-reliance has been more a slogan than an objective. This deception continues. The felony is compounded by ill-digested cries of "modernism in danger" The simple truth is that in most areas of development relevant to the people we can do the job ourselves, where we, indeed, cannot, we can have a sensible trade arrangement.

The problem with the Janata Party seems to be that it is not sure of the meaning of the Gandhian alternative and the limits of its usefulness in the present context. This is possibly being taken advantage of by the civil bureaucracy.

Procurement Prices

THE REJECTION of fantastic claims for paddy prices has been accompanied by announcement of movement policy. The prices question is often determined by lobbies, not merely of producers but of urban consumers The high cost of subsidy—as in oil prices in the absence of an energy policy—is only increasing the miseries of the rural poor. The states have not always shown a resolve not to succumb to pressure groups.

In any event government is yet to come out with a clear policy of taking advantage of a good harvest and a continuing high level of stocks for an employment programme which will give the poor the necessary purchasing power while at the same time generating worthwhile assets. Besides, a price control policy has to be integral and not merely in relation to isolated commodities and inputs. Distribution systems using available rural outlets and creating new ones, accompanied by a policy of requisitioning and a minimum of subsidy, where inevitable, will have to be worked out

Compartmentalised approaches do not seem to have been given up yet. Does the Planning Commission have a role in all this ?

Punjab Tiff

IT IS not clear yet what exactly the trouble was between Shri Talwar and Shri Jivan Singh Umranangal If the officer's stand was that a minister has no status in the administration, it is clearly untenable Much of the problem of administrative reform is the studied attempt by the top bureaucracy to make this its exclusive preserve, as though it is not a major political issue. To say that redressal should be sought only through official channels and not by access to ministers is plainly a way of declaring that there is a separate and inviolate sphere of administrative jurisdiction

There is of course, the problem of indiscipline arising from employees taking advantage of direct access to ministers This is a problem which can and must be resolved The prime minister and the home minister have already made it clear what their views are But it is a vastly different proposition if the top bureaucracy makes an issue of jurisdiction Clearly in our parliamentary democracy the executive is the Cabinet and not the bureaucracy which is only an instrument of the executive There is and can be no conflict to jurisdiction

The manner in which a public controversy was made of a simple matter of resolving a specific problem leads one to suspect that there is more to this than mere pique, petulance and injured dignity. Shri Badal's position seems unexceptionable when he says there is no conflict of roles at all, the officials are there to help ministers with disinterested and bold advice and that ultimately the responsibility for decisions lies with the ministers who are answerable to the people

It is time the bureaucracy gave up its ideas of independent grandeur and accepted its role in a parliamentary system Let its courage be shown in the independence of its policy advice—a quality not very much in evidence in recent years

Water Management

WHILE THERE may be merit in the argument for a national water policy, one does not see why a federal arrangement cannot work If an integrated view of inter-state problems is taken and a federal council is set up, it should be possible to sort out regional differences on a wide front The problem has always been a suspicion of a big brother attitude even where it does not exist Very often the Union gets a bad name for a good job If international problems can be settled across the table on the basis of equality, inter-regional problems can certainly be. Some element of commercial arrangement is likely to work better than a mere appeal to patriotic sentiment.

Since water management is urgent for rural development, prevention of floods, farm improvement and employment, two simultaneous steps are indicated—the setting up of a federal council consisting of ministerial representatives of all the states and a directive to engineers to come up very quickly with schemes which can be given effect to immediately and those which can be taken up in stages

A Brazen Reply

SHRI SHANTI BHUSHAN, in explaining a judge's elevation, perhaps forgot that he was replying to a revered figure of the resistance to the emergency. Otherwise he would have adopted a humbler tone. In any event one does not see the relevance of the references to the Law Commission or to the 27 (or is it 28) precedents in a circumstance of general disgust with the cavalier manner of appointments in recent years to the highest courts of the land

The boycott by the senior law officers of the government of the swearing-in ceremony at least redeemed the present regime insofar as it was a breath of fresh air and a departure from toadyism, subservience and abandonment of ethics which marked legal behaviour not so long ago.

However that be, it is time that an objective, well-understood and publicly-proclaimed policy of judicial appointments is evolved without delay, so that even bonafide actions may not be seen as backstage intrigues in high places.

This applies equally to important appointments to public sector bodies. If newspaper reports are to be believed, the styles of administration do not seem to have changed much. Secrecy leads to patronage and, therefore, the files concerning such appointments should be open to inspection by a statutorily-established body. Nothing less than a clean break with the ignominious practices of the recent past, now being brought to light, will make for public confidence in the professions of honesty of policy and purpose.

Thank God! We Are Inefficient

SAHADEVA

IT IS a quirk of elite logic that the greatest indictment of the drama surrounding Smt. Gandhi's arrest is that "it was bungled" Eight years ago after the Congress split, the ruling party convened its first council in New Delhi. For all the fanfare of a new ethos, a new spirit, that AICC session proved, mercifully, to be as extravagant, pompous, slothful and inefficient as most such sessions had been since 1947 There was a sigh of relief So long as we had a chance of muddling through, there was hope Efficiency, in the circumstances of the split, could have been a frightful monster The only saving grace of the emergency six years later was that it was inefficient

Probably Shri Gujral was sacked for not ensuring that no newspaper appeared on the morning of June 26, 1975 and some newspapers in New Delhi could escape the cutting off of power supply and brought out special supplements

It should be said to the credit of our knowledgeable columnists that they are not arguing for that kind of efficiency—but only just so Are these columnists and their reporting colleagues atoning for the write up of the arrest which appeared in most national newspapers on the morning after ? The tantrums of one aspiring to be a star performer with an eye to the spectators, an outburst in Lady Macbeth's style—unsex me here—, the masking of cowardly arrogance of spoilt children as outraged innocence, the racing of cars, the posture of "patience on a monument"—only it was a culvert—, and the imperial gesture of condescension—how was all this juxtaposed with a wholly refreshing demonstration of patience, courtesy and dignity of a police force which, only until recently, was known for the efficiency of its "cloak and dagger" operations ? In the face of the gravest of provocations which, in other circumstances, might have brought forth instant retaliation, the constabulary acted without blood-shot eyes even to the point of being shown up as being chicken-hearted, inefficient, hesitant, irresolute and generally comical.

HOW was all this portrayed in the reporters' columns ? What was the picture that emerged from the imaginative coverage of a farcical drama in which the star performer was held up to ridicule ?

Whether the police attitude was deliberate policy or showed unpreparedness for undignified behaviour elsewhere, the result was an image of the force as humane even in a circumstance of extraordinary rival petulance.

Only when the release order came, everyone seems to have woken up to a sense of "bungling" even from the previous day Is it not rather funny that the assertion of magisterial independence itself is held against the police ? If nothing succeeds like success, nothing fails like failure, it seems

Is it being suggested that we should go back to the days of the mid-night knock, the whisking away of hundreds and thousands of people to unknown destinations under an elaborate cover of secrecy, the denial of the judicial process, the falsification of evidence and retrospective legislation ? Is it suggested that a person released should be picked up again at the gates of the court as was the practice for almost a decade now ? Is it suggested that the arrest, the appearance in court and the release should have been done so efficiently that nobody would have known about it ? Is it suggested that the supporters—they are obviously numerous—should have been held back at the Red Fort or at Mehrauli ? Is it suggested that the crowd should have been fired upon ? Or is it suggested that the magisterial order should have been anticipated ?

THEN THERE is the argument that Smt Gandhi is no ordinary person and the retreat lines should have been properly manned Most certainly, Smt. Gandhi is no ordinary person She is the daughter of Jawaharlal Nehru and the grand daughter of Motilal Nehru, even if she is the mother of Shri Sanjay Gandhi It is this—not the fact of her prime ministership—which makes any action in regard to her more than a party, cabinet or individual issue It is a national question Precisely for that reason it would have been craven cowardice to ensure that all escape lines were barred If the fuller play of public opinion is necessary concomitant of democratic polity, its importance is greater when we deal with the daughter of one of modern India's chief architects If for nothing else, the inefficiency of the operation, supposed or real, is something to be thankful for, because it has given the people of this country a chance to exert the pressure of their opinion Its influence on public policy will be profound

Would the press have had the opportunity or the judiciary the chance of upholding the sovereignity of law and the people, if the state were more efficient than it is ?

The efficiency brigade is working on the wings It will only want the exact setting to reduce democracy to a secret operation Let us not forget that the tallest of men and women only recently were the victims of

this kind of efficiency.

SMT. GANDHI'S arrest and release are matters of national concern. But the humanity of police behaviour, the resurgence of judicial independence, the freedom for even the perpetrators of crimes to live, move, speak and be cheered freely, the presumption of their innocence till the crimes are proved, the scope for the fullest expression of public opinion and the opportunity of the widest public debate—these have been the assets in a long catalogue of failures. The nation's stake is not in one party or the other but in the preservation of the democratic content of our polity. It was this which was in danger in the seeming efficiency of the emergency. Its last chance is in a measure of political, administrative and police inefficiency, which is only a foil of open society.

Freedom Is Indivisible

Wake Up Shri Advani

KAUSHIK

THE AUSTRIAN Federal Chancellor has only confirmed the widely-propagated assertion by the "emergency underground" of the international solidarity behind the Indian people's fight against the nineteen-month despotism. By sending his envoy in India to Patna to convey a personal message of admiration to Jaya Prakash for his relentless struggle for freedom, the Chancellor, Dr. Bruno Kreisky, like many of the socialist leaders of European governments, has made it known that the stupid proprieties of official behaviour cannot come in the way of a partisanship with the struggles against oligarchies, elected or otherwise Dr. Kreisky with many leaders of the Socialist and Amenesty Internationals had intervened in favour of the political prisoners

Though a glimpse of the swelling tide of liberal world opinion against the infamous emergency has been had by the Indian people through the recent meetings in this country of the friends of India abroad, through scattered bits of news appearing in the press and through some broadcast talks, the flood of writings, speeches, demonstrations, appeals, parliamentary debates, pressures on governments by liberals of different hues in widely scattered parts of the world, is still a closed book to most of our countrymen. The worst kind of censorship had kept us dark about the burgeoning of the world response to the Indian struggle reminiscent of the days of the Spanish civil war

BERNARD LEVIN made India's cause his own. Fenner Brockway poured out the anguish of his heart David Selbourne took Jannie Lee to task. The New Statesman lambasted the Rt Hon'ble Michael Foot. Colin Welch, James Cameron, Oriana Fallaci, the American, European, Canadian, Australian and Japanese press, Scandinavan and Irish leaders in government and elsewhere, the foreign broadcasting stations—official or private—, David Loshak, Jack Anderson, scientists, composers, writers, professors, widely differing otherwise—all of them in a unique demonstration of solidarity fought relentlessly for the restoration to the people of India of their inalienable rights of freedom If Litvinov said that "peace is indivisible", and others elaborated the idea to embrace prosperity, liberals the world over have repeatedly asserted that freedom is equally indivisible Members of the Australian Senate, returning from India, made it their mission to rip the mask of democracy and show to Australian Parliament and people the true face of the Indian version of semi-fascist humbug.

And what protection, encouragement and liberal help was given to Indians abroad fighting for the cause of freedom! Foreign correspondents came to India in the guise of tourists to keep the international press fully supplied with all the facets of the fraud and falsehood that passed for emergency.

And yet how do we behave? We want to keep on assuring governments that our soil will not be permitted to be used to organise even opinion against continuing tyrannies. And, sometimes, we are not even ashamed of throwing out of India brave men who had sought our haven for their struggle in the cause of freedom. Delhi is, of course, not London.

IT IS AMAZING that the new government should not affirm the principle of indivisibility of freedom and should take shelter in the pruderies of non-interference in the supposed internal affairs of other countries. We even wish to profit by mercenary understandings with despotisms Indian freedom can never be secure without an understanding of the universality of the struggles against personal dictatorships

If we have been kept in the dark about the international response, we have been equally kept ignorant about the glorious national response—individual and collective Except for the Baroda dynamite case, the tortures suffered by some people like Snehlata Reddy, Lawrence Fernandes, Rajan and a few others and the stories of resistance in scattered places, little has been told of the magnificent sacrifices of noble Indians—and this after six months of liberation from tyranny.

How many people have heard of the determined stand of men like Gaur Kishore Ghosh, Uma Shankar Joshi, M C Chagla and Bhawani Prasad Misra? How many know of the resolute defiance of journals like *Mainstream, Seminar, Opinion, Sadhana, Janata, Bhoomiputra* and *Himmat*?

How many know of the spirited speeches in Parliament? How many know that the veteran leader of social movements P Kodanda Rao, wrote to Smt Gandhi from his deathbed imploring her to turn back from the road to perdition? He quoted from a memorable speech of Winston Churchill in the House of Commons in July 1942 when Britain was fighting for her survival The quotation was :

"This long debate has now reached its final stage. What a remarkable example it has been of the unbridled freedom of our parliamentary institutions in times of war! Everything that could be thought of or raked up has been used to prove that ministers are incompetent and to weaken their confidence in themselves; to make the army distrust the backing it is getting from the civil power: to make workmen lose confidence in the weapons they are striving hard to make; to represent the government as a set of non-entities over whom the prime minister towers, and then to undermine him in his own heart and, if possible, before the eyes of the nation! All this poured out by cable and radio and the press to all parts of the world, to the distress of our friends and to the delight of our foes!

"I am in favour of this freedom, which no other country would use, or dare to use, in times of mortal peril such as those through which we are

passing."

Others like Bhimsen Sachar quoted Jawaharlal Nehru in an appeal to Smt. Gandhi's conscience only to find themselves arrested. And a great artist and dedicated social worker thought it better to end his life than suffer the suffocation of freedom.

Many gave up the badges of honour. Thousands courted imprisonment voluntarily.

Do the people of India know anything of the national and international response to the challenge thrown by a despotic regime? What are Shri Advani and Shri Pratap Chunder Chunder doing?

THE FIBRE of our people, their faith in their inherent power to resist, their confidence in the future will be reinforced if the story is pieced together quickly and told through a thousand ways, in song, legend and ballet. Is the Ministry of Information & Broadcasting aware of its responsibilities? What are its various functionaries doing over and above poring over irrelevant files?

Wake up, Shri Advani. "Strike, strike at the root of penury in my heart", said the poet. And one may add "Strike, strike terror in the hearts of aspiring tyrants", through a nation roused.

Lenin's 'Magic way'

GIRISH MATHUR

THE OCTOBER REVOLUTION was not "transfer of power"; nor was it a *coup*. It was not as if on 25 October, 1917 (according to the new calendar, 7 November), Lenin and the Bolsheviks took over or captured a running state machinery and then set about using it for their purposes. What took place on that date was a revolution, and a revolution marks at once the end of the old and the beginning of a new system. If revolution is biggest act of destruction, it is also the greatest act of construction. But a revolution is not something achieved in one blow; it is a process. Nor is it subject to the whims and wishes of those who seek it; it is governed by social laws which have to be studied by the revolutionaries to be able to lead it to *its* logical end and save it from disintegration. We in India have chosen different social objectives and a different path to achieve them, but we do recognise the difference that the October Revolution has made for the humanity and are, therefore, interested in studying its dynamics.

Since it was the first socialist revolution, Lenin and the Bolsheviks did not have a model before them according to which they could go about their job. Marxism had taught them the general laws of social development, but Marxism had also taught them that every development was governed by the specific features of the situation in which it took place, and they had to go by the hard facts of the specific situation in which they were operating, study these facts, subject them to rigorous analysis, minutely observe the different trends, assess the strength of these trends and their own capacity to influence them, and thus lay down their broad strategy and day to day—nay, hour to hour—tactics. An interesting example of how they went about their job is provided by a perusal of a pamphlet Lenin wrote less than a month before the final assault on 25 October.

LENIN TOOK up the question "Can the Bolsheviks Retain State Power?'—which became the title of the pamphlet—and answered all the doubts which lay behind the question. One of the doubts related to their ability to lay their hands on the state apparatus and another to their capacity to run it even if they were able to get it. Analysing the two points at length Lenin pointed out that primarily the state apparatus consisted of the army, the police and the bureaucracy, and the Bolsheviks did not intend to "lay hands" on these but to smash them He emphasised that the Bolsheviks intended to replace these wings of the state apparatus by new ones which had already come into being in the form of the Soviets of Workers', Soldiers' and Peasants' Deputies.

As for the capacity of the Bolsheviks to run the Soviets, Lenin analysed the current developments to point out that the Soviets had in fact begun "running". The real question was to overcome the resistance of the existing state apparatus which was in the process of being smashed up and to establish workers' control. The "means of control" had been forged by the system under attack "in its military-imperialist stage"; grain monopoly, bread rationing and labour conscription were used by the ousted ruling class to control the workers and the poor. Now these "means of control" would be used to break the resistance to the establishment of workers' control; the rich would now have to get work-book; if they worked they would get their rations.

Analysing various voting figures Lenin pointed out that workers and the peasantry were against a coalition with other sections. Besides, he pointed out, "Since the 1905 revolution Russia has been governed by 1,30,000 landowners who have perpetrated violence against 150,000,000 people. Yet we are told that the 240,000 members of the Bolshevik party will not be able to govern Russia in the interests of the poor and against the rich. These 240,000 are backed by no less than a million votes of the adult population We, therefore, already have a 'state apparatus' of one million people."

HE WENT on to add, "In addition to that we have 'a magic way' to enlarge our state apparatus *tenfold* at once, at one stroke, a way which no capitalist ever possessed or could possess. This magic way is to draw the working people, the poor, into the daily work of the administration. This is what he had in mind when elsewhere in the same pamphlet he wrote that "it is important to introduce more democracy into the administration of a proletarian state" and emphasised at yet another place the need to "devise the simplest, cheapest, most convenient and universal measures and methods of control"

Lenin himself gave an example of how his 'magic way' would work. He said that evictions of working class families for non-payment of rent were a common occurrence and the appearance of the bailiff with police and militia in a working class area invariably caused tension and roused the fury of the neighbours. Once the Soviets exercised control, squads of representatives of different sections of the people would go to the localities of the rich, survey available space during the winter, ask the rich occupants to squeeze into less space and make room for working class families in the spare rooms; the non-working members of the families of the rich who could work would be asked to look after cleanliness and sharing of the facilities in their houses.

Lenin then went on to emphasise that "we are not utopians; we know that an unskilled labourer or a

cook cannot immediately get on with the job of state administration; we, however, demand immediate break with the view that only the rich, and officials chosen from the rich families, are capable of administering the state ; we demand training in the work of administration by class conscious workers and soldiers and this training be begun at once, that is, that a beginning be made at once in training *all* the working people, all *the poor*, for this work." Also, Lenin fully conceded the need for discipline in administering the state , in fact his claim that the Bolsheviks could manage the state was based on precisely the argument that "we alone have class conscious workers disciplined by long capitalist 'schooling' who are capable of forming a workers' militia and expanding it into a militia *embracing* the whole people "

LENIN'S INSISTENCE on involving the widest sections of people in the administration was derived from his close study of Marx's writings on the short-lived Paris Commune While providing day to day leadership to the Bolsheviks from underground, Lenin wrote his well-known theoretical work *State and Revolution* during August-September, 1917, in which he examined the whole question of state power keeping in mind the practical issues facing the Bolsheviks as they were preparing for the final bid for power. Quoting Marx he wrote that the "working class must break up, smash the ready-made state machinery' which "was to be replaced by the proletariat organised as the ruling class, by winning the battle of democracy."

The key phrases in this formulation are "proletariat organised as the ruling class" and "winning the battle for democracy," meaning that the working class as a whole had to function as the ruling class which would mean *genuine* democracy The point was clarified by Lenin when, referring to the Paris Commune, he wrote that it "replaced the smashed state machine by fuller democracy : abolition of the standing army, all officials to be elected and subject to recall " According to the Marxists, the state is the organ of the ruling class to suppress the people , Lenin argued that when the vast masses of the people themselves became the ruling class, a special force for the suppression of a tiny minority of the former ruling class was no more necessary.

He wrote, 'Instead of the special institutions of a privileged minority (privileged officialdom, the chiefs of standing army), the majority itself can directly fulfil all these functions, and the more the functions of state power are performed by the people as a whole, the less need there is for the existence of this power. In this connection, the following measures of the Commune, emphasised by Marx, are particularly noteworthy · the abolition of all representation allowances and of all monetary privileges of officials, the reduction of the remuneration of all servants of the state to the level of workingmen's wages This shows more than anything else the turn from bourgeois to proletarian democracy, of the oppressors to that of the oppressed classes, from the state as a special force for the suppression of the people to the suppression of the oppressors by the *general force* of the majority of the people—the workers and peasants "

BEGINNING WITH the "majority of the people" Lenin visualised the stage when "the whole population without exception" would function as the state apparatus. He pointed out that culture has created large scale production, factories, railways, postal service, telephones, etc., and on this basis the great majority of the functions of the old state power have become so simplified and can be reduced to such exceedingly simple operations of registeration, filing and checking, that they can easily be performed by every literate person for ordinary workingman's wages and can (and must) be stripped of every shadow of privilege, every semblance of 'official grandeur'. All officials without exception elected and subject to recall at any time, their salaries reduced to ordinary workingman's wages—these simple and self-evident democractic measures, while completely uniting the interests of the workers and the majority of peasants, at the same time serve as the bridge leading from capitalism to socialism."

Lenin again and again emphasised that "it is necessary to convert the functions of the civil service into the simple operations of control and accounting that are within the scope and ability of the vast majority of the population, and, subsequently, of every single individual " He added, "if careerism is to be avoided completely, it must be made impossible for 'honourable though profitless posts in the civil service to be used as springboard to highly lucrative posts in banks or joint stock companies as constantly happens in all the freest capitalist countries "

THESE THEORETICAL propositions informed the practice of the Bolsheviks when they came to power, although at times they had to make compromises Lenin always justified compromises when necessary, provided the main task was kept in mind and the compromise helped in the advance towards the accepted goal Within six months of coming to power, Lenin wrote a document entitled *"The Immediate Tasks of the Soviet Government"* in which he dealt with administrative problems and pointed out that the main task before them at that stage was not so much the destruction of the remnants of old institutions as consolidation of the gains made so far and building new instiutions. He pointed out that "our work of organising country-side accounting and control of production and distribution under the supervision of the proletariat has lagged far behind our work of directly expropriating the expropriators." He repeatedly emphasised that introduction of socialist reforms was held up "because accounting and control are insufficiently organised in general " He pointed out that, unless the state monopolies in grain, leather and the like were consolidated and improved, they could not go ahead with the take over of foreign trade, and likewise bank nationalisation could not transform banks into "nodal points of public accounting under socialism" unless they achieved "real success in increasing the number of branches of the People's Bank, attracting deposits, simplifying the paying in and withdrawal of deposits by the public, abolishing queues, catching and shooting bribe-takers and rogues, etc " He also complained that they were lagging behind in the collection of taxes

He warned that "without comprehensive state accounting and control of production and distribution of goods, the power of the working people, the freedom of the working people, cannot be maintained, and a return to the yoke of capitalism is inevitable." He said that capitalism had been defeated but not yet crushed, and that is trying, on the one hand, to operate from outside by "methods of conspiracies and rebellions', and, on the other, "operate from within and take advantage of every manifestation of disintegration, of every weakness, in order to bribe, to increase indiscipline, laxity and chaos." He also pointed out that "since the revolution occurred so rapidly" it was impossible to

prevent a certain number of "adventurers and rogues from getting into positions of authority, and they, together with a number of inept and dishonest commissars, would not be averse to become star embezzlers of state funds." This further underlined the need for developing accounting and control and called for "not military suppression but administration, not shooting on the spot but trial by court."

Lenin emphasised that "the socialist state can arise only as a network of producers' and consumers' communes which consistently keep account of their production and consumption, economise on labour, and steadily raise productivity of labour." These communes were to him "a new democracy" which enabled "independent participation in the administration of the state by tens upon tens of millions of working or exploited people". He repeatedly emphasised that "there is no freedom and no democracy where there is suppression and violence" and that the time had come for them to clear the debris of the smashed bourgeois institutions and for "careful nursing of the rudiments of the new system which are growing amidst the wreckage on a soil which has as yet been badly cleared of the rubble." These rudiments were arising out of mass participation in the administration with the working people themselves becoming the ruling class.

THIS WAS the 'magic way' by which Lenin sought to build the new state. But he was not to live long. Moreover, the state is a social phenomenon which is under construction all the time; in the years since Lenin's death the Soviet state has passed through many formal and informal changes. It is hoped that the new constitution which the Soviet people have recently adopted will mark an advance towards the kind of state which Lenin sought to build.

Lenin : Icon or an Idea?

FOR MORE than a century and a quarter the world of Europe was used to regarding the French Revolution as the ultimate in political upheaval Basking in the gains of the great event, Europe spread out into Asia and Africa inaugurating the dark age of colonialism in world history, and betraying the Revolution in the process. But the epoch also midwifed the industrial revolution and wrote the envoy to feudalism.

The late nineteenth century European civilisation flourished on "the white man's burden" abroad and the industrial galley-slaves at home. World War I was fought between the empire builders for the greater luxury of their dining rooms and parlours. While the imperialists were at each other's throat, rolled a peel of thunder—from Russia—presaging the dawn of a "New Civilisation". It rocked the very foundation of world capitalism which reached its apogee in the imperialist order in the vast lands of Afro-Asia

The exhilarating cry of "Workers of the World Unite" was heard in 1848. It sounded like a banshee wail. Marx and Engels also revealed the spectre of communism hanging over Europe. In October 1917 the word was made flesh, and it was no spectral apparition.

Historians will never be unanimous on what was Lenin's greatest achievement. Organising the CPSU, working the levers of revolution, proclaiming the first socialist state or winning the fight for survival - all are so inextricably interlocked that the summation alone would give the whole picture of this epic personality And in this case, the whole is more than the sum of its parts. What is more is the Lenin who spilled out of the borders of the Soviet state. Inside the Soviet Union he is the father figure par excellence Outside it, he is an idea which inspires. The accident of birth and the revolution he steered through made him a Soviet Russian phenomenon The cause he espoused made him a global presence.

THE CORPUS of Marxism presented nothing more than the goal of socialist state. Bush-whacking to reach the goal was Lenin's historic mission. The prospect of taking over charge of a hundred and fifty million people did not over-awe this leader of a minority party. For him seizure of power was "as easy as lifting a feather", the establishment of a socialist state and administering it a matter of detail. He set up the dictatorship of the proletariat in place of the Tsarist military-bureaucratic dictatorship.

Began the phase of socialist nation-building. But in launching forth into this mighty endeavour, for which history held out no guiding hand, Lenin did not entirely disown the past. What was good in the old order which lay a shambles, Lenin took over.

Passionate pursuit of a great cause does not breed fanaticism; nor does true socialist nationalism beget chauvinism. This Lenin testified to in the national and international policies he evolved

The Treaty of Brest-Litovsk cost the Soviet Union much territory. But that was the old nationalist view. In the new order ushered in by Lenin there was no boohoo over the treaty.

LENIN BURST upon the rest of the world like a tornado. Never before in history has a political leader produced such global response and repercussion as Lenin did. To the capitalist world he was a caliban; to the colonial people, an epiphany. Promptly the imperialists threw the *cordon sanitaire.* That did not prevent the magnetic field of Leninism from operating. Sansculottes the world over rallied under the banner of socialism. Communist parties blossomed out in almost every quarter of the world where there was a politically conscious section The subject people in the colonies and dependencies saw in Lenin and his new Society a new hope for their freedom—and a "freedom" which was acquiring a new meaning.

THE WORLD revolution, of which Lenin considered his own to be a part, is yet to be. To that extent, he has been a pipe dreamer, say his antagonists. But even they cannot gloss over a fact of current history. When Lenin proclaimed the first socialist state, only a sixth of the world's population came under socialism. Today socialism is a world force. Under the irresistible impact of scientific and technological forces which control the modern industrial state, capitalism and communism will eventually coalesce to form a new society blending personal freedom and profit motive with the socialist system's government control of the economy. To Lenin and the state he founded belong a major share of the compulsions which thus humanised capitalism.

But the splintering of the once monolithic international communism has made the validity of the

Marxist-Leninst assertions that a socialist world will assure peace and prosperity to mankind look rather suspect. The Third International has gone to pieces. The days of the Second International are back It would thus appear that Lenin's fulminations against the latter resulted from an underestimate of the force of nationalism. However for 43 years, from 1917, Lenin held the field. Even now, all shades of communists never cease saying, "Comrade Lenin, we stand by you". That they still rally under Lenin's banner gives a measure of the universal Ilych. Or are they merely iconising him ?

Is God in Church Alone ?

FIFTY YEARS ago Jawaharlal Nehru wrote of the first ten momentous days of the October Revolution. "Within a week", he said, "they had tackled the problem of minorities, which, like the poor, is always with us in India".

If Lenin could do so, it was largely because he had, in every detail, thought out the course of action immediately after the day of victory which, he was sure, was coming On minorities and language, his views were unambiguous. He said :

"What does a compulsory official language mean ? In practice, it means that the language of the Great Russians, who are a *minority* of the population of Russia, is imposed upon all the rest of the population of Russia. In every school the teaching of the official language must be *obligatory*. All official correspondence must be conducted in the official language, not in the language of the local population...

"We do not want to have people driven into paradise with a cudgel, for no matter how many fine phrases about 'culture' you may utter, *compulsory* official language involves coercion, the use of the cudgel.. People whose conditions of life and work make it necessary for them to know the Russian language will learn it without being forced to do so. But coercion (the cudgel) will have only one result ; it will hinder the great and mighty Russian language from spreading to other national groups, and, most important of all, it will sharpen antagonism, cause friction in a million new forms, increase resentment, mutual misunderstanding, and so on.

"Who wants that sort of thing ? Not the Russian people not the Russian democrats. They do not recognise national oppression *in any form*, even in the interests of Russian culture and statehood."

LIKE THE DECREES on peace and land, the ideas of the Soviet Revolution were based on a certain philosophy with which one might or might not agree. In fact the bulk of the national leadership in India—Gandhi and Nehru, for instance—rejected the Soviet method and even many of the ideas of the revolution. But there was an effort to understand these ideas. Thus Nehru wrote in 1927 or 1928 :

"The main characteristic of the Soviet system is its open recognition of the fact that society consists of different social groups or classes, each with different economic interests. So long as this condition lasts, every government must express the relative importance and strength of these social classes. The long course of history is interpreted as a conflict between these different social groups or classes. We thus have what is called the economic interpretation of history, or historical materialism. In each historic period, we are told, there is a dominating class and the interests of other classes are only considered insofar as they serve to prolong or strengthen this domination. But this domination of one class over the others is seldom, if ever, clearly and openly expressed in the form of government. It is disguised in various ways to delude those who are exploited by it, and, where changes are slow, the dominating class creates an impression of eternal rights and duties, to safeguard its own interests".

ARISING FROM these formulations was Lenin's approach to economic issues. Of interest to Indian students of current affairs is what he had written of bank nationalisation :

"The banks are the ganglions of modern economic life, the principal nerve centres of the whole capitalist economic system. To talk about 'regulating economic life' and at the same time to evade the question of the nationalisation of the banks is either to betray the most profound ignorance or to deceive the 'common people' by florid words and grandiloquent promises with the deliberate intention of not fulfilling these promises

"It is utterly absurd to control and regulate deliveries of grain, or the production and distribution of goods generally, without controlling and regulating bank operations. It is like trying to save chance farthings and closing one's eyes to millions.

"As a matter of fact, the nationalisation of the banks, which would not deprive a single 'owner' of a single farthing presents absolutely no technical or cultural difficulties whatsoever, and is being delayed *exclusively* because of the vile greed of an insignificant handful of rich men."

The way Lenin looked at it was that if he was to succeed, he should accomplish his economic goals quickly. Nehru once said, "They (the Soviet leaders) had time, even on the fourth day of the Revolution, with firing going on in the streets, to establish the eight-hour day for workers and formulate their policy for a system of popular education.

RABINDRANATH TAGORE could see why the Russians were in a hurry. Writing in September 1930 he said :

"I am now in Russia ; had I not come, my life's pilgrimage would have remained incomplete. Before it is time to assess good and evil in their activities here, the first thing that occurs to me is : What incredible courage."

"What has astonished me most is the tremendous task that is being carried out here. Had it been merely a colossal destruction I would not have been so greatly surprised, because they can cause enough trouble if they want to, but I can see that they are determined to raise a new world. They have no time to lose, because the whole world is their opponent, they must prove without delay that what they want is not wrong and that it is no fraud ; a decade or two is determined to prevail against a millenium."

The poet further says :

"What has pleased me most here is the complete disappearance of the vulgar conceit of wealth. For this reason alone the self-respect of the people has been restored ; peasants and workers have all shaken

off the load of disrespect and raised their head. How wonderfully easy has become man's relation with his fellows!"

"If I had not seen with my own eyes, I could never have believed that even within ten years' time, lakhs of people sunk in ignorance and humiliation, could not only be made literate but given the dignity of manhood. Here they exert themselves as much for all other races as for their own. And yet men of communal religion call them irreligious. Is religion then to be found only in religious texts, and is God confined to the precincts of church and temple? Do they ever have God with them who continually cheat mankind?"

"Lest Lenin be Falsified by Tinsel Beauty"

Time, speed on, spread Lenin's slogans in your whirl!
I fear these eulogies line upon line
Like a boy fears falsehood and delusion.
They'll rig up an aura round any head;
The very idea—I abhor it,
That such a halo poetry-bred
Should hide Lenin's real, huge, human forehead
I'm anxious lest rituals, mausoleums and processions,
The honeyed incense of homage and publicity
Should obscure Lenin's essential simplicity.
I shudder as I would for the apple of my eye
Lest Lenin be falsified by tinsel beauty

Write! — votes my heart,
Commissioned by the mandate of duty
I knew a worker—he was illiterate—
Hadn't even tasted the alphabet's salt,
Yet he had listened to a speech by Lenin.
And so knew all.
I remember a story by Siberian peasants
They'd seized land, held it and worked it into very heaven.
I've been up mountains—not a lichen on their sides.
Just clouds lying prone on a rocky ledge.
The one living soul for hundreds of miles
Was a herdman resplendent with Lenin's badge.
Some'll call it a hankering for pins
Fit for girls—makes a frock look a bit more rich
But that pin'll scorch through shirts and skins,
To the hearts brimful of devotion of Ilyich
This couldn't be explained by churchmen's hooks and crooks;
No God Almighty bade him be a saviour
Working step by step his way through life and books,
He grew to be the teacher of world labour.

—MAYAKOVSKY

A New Society

"The Provisional Government has been deposed. State power has passed into the hands of the organ of the Petrograd Soviet of Workers' and Soldiers' Deputies—the Revolutionary Military Committee, which heads the Petrograd proletariat and the garrison.

The cause for which the people have fought, namely, the immediate offer of a democratic peace, the abolition of landed proprietorship, workers' control over production, and the establishment of Soviet power—this cause has been secured.

The workers' and peasants' revolution, about the necessity of which the Bolsheviks have always spoken, has been accomplished.

"By a just or democratic peace, the Government means an immediate peace without annexations (i.e. without the seizure of foreign lands, without the forcible incorporation of foreign nations) and without indemnities . . .

"The government considers it the greatest of crimes against humanity to continue this war over the issue of how to divide among the strong and rich nations the weak nationalities they have conquered.

"The government abolishes secret diplomacy, and, for its part, announces its firm intention to conduct all negotiations quite openly in full view of the whole people. It will proceed immediately with the full publication of the secret treaties enforced or concluded by the government of landowners and capitalists from February to November 7, 1917. The government proclaims the unconditional and immediate annulment of everything contained in these secret treaties insofar as it is aimed, as is mostly the case, at securing advantages and privileges for the Russion landowners and capitalists and at the retention, or extension, of the annexations made by the Great Russians."

"Landed proprietorship is abolished forthwith without any compensation.

"The landed estates, as also all crown, monastery, and church lands, with all their livestock, implements, buildings and everything pertaining thereto, shall be placed at the disposal of the *volost* land committees and the *uyezd* soviets of peasants' deputies pending the convocation of the constituent assembly."

THE WONDER GROWS

Today, ten years after the first world war, how far we are from an open diplomacy can be seen from the recent secret Anglo-French naval pact. But Russia has survived because she had the 'voices of humanity' with her . .

And as one reads, with horror and pain at times, the wonder grows that such a miracle could have happened and succeeded. And above all there is admiration for the group of men who did not flinch at the mightiest of obstacles, and in the midst of war and rebellion, with a cruel death and disaster continually facing them, sat down to evolve a socialist order out of the chaos that surrounded them.

—Jawaharlal Nehru

The art that flourishes on the Russian stage displays ceaseless courage of new creation. This daring of new creation too is active in their social revolution. In society, politics, art, nowhere have they feared the new.

—Rabindranath Tagore

Gandhi and Nehru on Lenin

I must confess that I have not yet been able to fully understand the meaning of Bolshevism. All that I know is that it aims at the abolition of the institution of private property. This is only an application of the ethical ideal of non-possession in the realm of economics and, if the people adopted this idea of their own accord or could be made to accept it by means of peaceful persuasion, there would be nothing like it.

But from what I know of Bolshevism, it not only does not preclude the use of force, but freely sanctions it for the expropriation of private property and maintaining the collective state ownership of the same. And if that is so, I have no hesitation in saying that the Bolshevik regime in its present form cannot last for long. For it is my firm conviction that nothing enduring can be built on violence.

But, be that as it may, there is no questioning the fact that the Bolshevik idea has behind it the purest sacrifice of countless men and women who have given up their all for its sake; and an ideal that is sanctified by the sacrifices of such master spirits as Lenin cannot go in vain; the noble example of their renunciation will be emblazoned for ever and quicken and purify the ideal as time passes.

Mahatma Gandhi

'I know a pair of eyes which have been for ever numbed by the burning sorrow of the Terror', said Gorky of Lenin. This sorrow did not leave him to the end. It made him a fierce fanatic and gave him the strength of will to persevere and achieve. But sorrow for the misery of his fellowmen did not make him gloomy or reserved. He was 'filled to the brim with the sap of life' and even 'in the unhappiest moments of his existence, he was serene and always prone to gay laughter' ..

During the critical days of 1921 when Moscow itself was threatened by the enemy and most people thought that the Soviet power was going to collapse, Lenin thought of the introduction of electric light in the villages and issued an ordinance for the immediate supply of electric light to certain areas...

By amazing power of will he hypnotised a nation and filled a disunited and demoralised people with energy and determination and the strength to endure and suffer for a cause...

And we may well say with Romain Rolland that Lenin was the 'greatest man of action in our century, and at the same time the most selfless'.

Lenin has become a mighty tradition, not only in his native Russia but in the world at large. As time passes he grows greater; he has become one of the chosen company of the world's immortals. Petrograd has become Leningrad, and almost every house in Russia has a Lenin corner or a Lenin picture. But he lives, not in monuments or pictures, but in the mighty work he did, and in the hearts of hundreds of millions of workers today who find inspiration in his example, and the hope of better day..

While the rest of the world was in the grip of the depression and going backwards in some ways, in the Soviet country, a great new world was being built up before our eyes. Russia, following the great Lenin, looked into the future and thought only of what was to be, while other countries lay numbed under the dead hand of the past and spend their energy in preserving the useless relics of a bygone age.

Jawaharlal Nehru

The revolution in Russia was regarded in India as a triumph over despotism . . It has given an impetus to Indian political aspirations.

Montagu-Chelmsford Report

H. G. Wells was, as he himself said, "disposed to be hostile to Lenin " when he set off to see him in the Kremlin in autumn 1920. Afterwards he wrote that his meeting with "this amazing little man, with his frank admission of the immensity and complication of the project of communism and his simple concentration upon its realisation, was very refershing. He at least has a vision of a world changed over and planned and built afresh."

On Language, Journalism, Human Relations and Classes

The Russian Marxists say that what is necessary is : the *absence* of an obligatory state language, the population being provided with schools where classes are conducted in all the local languages, and the constitution to include a basic law annulling all and sundry privileges for any nation and any restrictions of the rights of the national minority.

A democratic state must recognise unconditionally *full freedom* for different languages and reject all privileges for any one language

The role of a newspaper is not limited solely to the dissemination of ideas, to political education, and to the enlistment of Political allies A newspaper is not only a *collective* propagandist and a *collective* agitator, it is also a *collective* organiser

On the development of the productive forces depend the relations into which men enter with one another in the production of things required for the satisfaction of human needs. And in these relations lie the explanations of all the phenomena of social life, human aspirations, ideas and law. . .

The abolition of classes means placing all citizens on an equal footing with regard to the means of production belonging to society as a whole. It is absurd to expect equality of strength and abilities in socialist society

—**Lenin**

* *

Although freedom for individuals is now relatively less important than it was in former times, it is still much more important than many people realise Buddhism, Christianity and Marxism owe their origin to individuals and no one of them could have arisen in a totalitarian state.

—**Bertrand Russell**

YOJANA

is

Published in

Nine Languages

SIDE TRACK

The Relevance of Junius

—*SANJAYA*

A.G. NOORANI has rendered as much service as anyone else and much more in the cause of democracy in its deepest sense. It is doubtful, however, if any of his writings is of greater value than his quotations from Burke's indictment of Warren Hastings and from the "unsurpassed invectives" of Junius who concealed his identity not only in his life time but ever after. For more than two centuries since he wrote his first letter in *Public Advertiser* on January 21, 1769, his identity has remained a mystery.

Of the excerpts from Junius quoted by Noorani, here is a choice one : "Let me exhort and conjure you never to suffer an invasion of your political constitution, however minute the instance may appear, to pass by without a determined, persevering resistance. One precedent creates another. They soon accumulate and constitute law. What yesterday was fact, today, is doctrine. Examples are supposed to justify the most dangerous measures; and where they do not suit exactly, the defect is supplied by analogy. Be assured that the laws which protect us in our civil rights grow out of the constitution and they must fall or flourish with it". Again · "Let it be impressed upon your minds, let it be instilled into your children that the liberty of the press is the palladium of all the civil, political and religious rights of an Englishman "

Relative Supremacy of Legislature

Noorani's choice of the following quotation from Junius is particularly appropriate : "When we say that the legislature is supreme we mean that it is the highest power known to the constitution; that it is the highest in comparison with other subordinate powers established by the laws. In this sense, the word 'supreme' is relative, not absolute. The power of the legislature is limited, not only by the general rules of natural justice and the welfare of the community, but by the forms and principles of our particular constitution". And : "We betray ourselves, we contradict the spirit of our laws and we shake the whole system of English jurisprudence, whenever we entrust a discretionary power over the life, liberty or fortune of the subject, to any man or act of men whatever, upon a presumption that it will not be abused". Further : "We can never be really in danger until the forms of Parliament are made use of to destroy the substance of our civil and political liberties, until Parliament itself betrays its trust by contributing to establish new principles of government and employing the very weapons committed to it by the collective body to stab the constitution".

Blackstone, a respected name and a great writer on the laws of England, after his arguments, as Solicitor-General, in the Wilkc case, had this said of him by Junius : "Dr. Blackstone is solicitor to the Queen. The doctor recollected that he had a place to preserve, though he forgot that he had a reputation to lose. We have now the good fortune to understand the doctor's principles as well as writings. For the defence of truth, of law and reason, the doctor's book may be safely consulted. But whoever wishes to cheat a neighbour of his estate, or to rob a country of its rights, need make no scruple of consulting the doctor himself".

No Shadow Boxing

Noorani mentions that, when reproached for the personal attack, Junius hit back, "To attack vices in the abstract, without touching persons, may be safe fighting, indeed ; but it is fighting with shadows. My greatest comfort and encouragement to proceed has been to see that those who have no shame and no fear of anything else have appeared touched by my satires".

And so to a Duke : "The character of the reputed ancestors of some men has made it possible for the descendents to be vicious in the extreme, without being degenerate. Those of Your Grace, for instance, left no distressing examples of virtue, even to their legitimate posterity; and you may look back with pleasure to an illustrious pedigree in which heraldry has not left a single good quality upon record to insult or upbraid you. You have better proofs of your descent, My Lord, than the register of a marriage or any troublesome inheritance of reputation . . . Charles the First lived and died a hypocrite. Charles the Second was a hypocrite of another sort, and should have died upon the same scaffold. At the distance of a century, we see their different characters happily revived and blended in Your Grace . . . You live like Charles the Second without being an amiable companion; and for aught I know, may die as his father did, without the reputation of a martyr".

What of tyrants and their follies? Here is an excerpt from Junius quoted by Noorani : "If nature had given you an understanding qualified to keep pace with the wishes and principles of your heart, she would have made you, perhaps, the most formidable minister that ever was employed to accomplish the ruin of a free people When neither the feelings of shame, the reproaches of conscience, nor the dread of punishment form any bar to the designs of a minister, the people would have too much reason to lament their condition, if they did not find some resource in the weakness of his understanding. We owe it to the bounty of providence that the completest depravity of the heart is sometimes strangely united with a confusion of the mind; which counteracts the most favourite principles and makes the same men treacherous without art, and a hypocrite without deceiving."

And what a relentless tragedy pursues a fallen tyrant ! Noorani quotes Junius : "I fear you have listened too long to the advice of those pernicious friends with whose interests you have sordidly united your own and for whom you have sacrificed everything that ought to be dear to a man of honour. They are still base enough to encourage the follies of your age, as they once did the vices of your youth. As little acquainted with the rules of decorum as with the laws of morality, they will not suffer you to profit by experience nor even to consult the propriety of a bad character Even now they tell you that life is no more than a dramatic scene in which the hero should preserve his consistency to the last; and that, as you lived without virtue, you should die without repentence."

And this was written two hundred years ago.

A New Approach to Planning

The following are extracts from the remarks made during a radio discussion by **Prof. Raj Krishna** *Member of the Planning Commission.*

I THINK basically there are only two decisions One is that Fifth Five Year Plan will be formally terminated on the 31st March next year and the other is that from the 1st April, 1978 we go on to a rolling plan system under which the span of projections will still be five years but this five year projection will be revised every year.

I think the basic inspiration behind the change is that these five year projections in the past used to become rigid and out of line with reality; demand projections proved to be wrong on the high side or on the low side and our economy is always subject to shocks from the weather, from the shortage of foreign exchange, from unexpected rates of inflation and now foreign exchange surpluses. Therefore, the economy needs more flexibility in its projection work from year to year and this is the inspiration for revising the projections to the minimum essential extent necessary every year

In the annual plan procedure a large number of demand projections still remained rigid because a new look on all projections was never made every year.

Now I think it will be very wrong to get the impression that flexibility means that every single demand projection, every single financial commitment, every single project in the shelf is going to be revised every year That could be a wrong interpretation of the rolling plan idea The idea is simply that some projection should be revised and as regards the horizon I would say that there is no technological constancy about demand projections for different sectors In fact I would say that for certain sectors, the stable horizon may be even longer than five years And the rolling plan idea does not imply that perspective projections for 10 or 15 or 20 years for fundamental sectors will not continue to be valid unless there is a very very strong reason to revise any of those projections So I want to stress that in practice only a minority of projections, projects and financial commitments may be revised, even under the rolling plan procedure.

The rolling plan will be made by the Planning Commission and my understanding is that the requirement will be as now that the non-plan expenditure and the plan expenditure for every financial year is decided together. And there will be no difference in this understanding The only requirement on the Planning Commission's part will be that the immediately following year's content of the rolling plan should be ready early so that the Finance Ministry's presentation for the non-plan outlay and our projections of the plan outlay agreed with the Finance Ministry are presented together in a consolidated form as now

Relative Emphasis

I think there is one more thing between objectives and what you call policies and that is the relative emphasis given to different objectives I would stress that it is quite clear that in regard to the objective of self-reliance the country can boast of sufficient success in building a capital goods base and a technological base. In regard to the objective of growth we can certainly talk about three to three and a half per cent growth which we have achieved But it is also clear that in regard to the objectives of distributive justice and employment our planning system has not succeeded overmuch Therefore, it seems to me that what is happening is that, having achieved substantial success on the self-reliance front and some success on the growth front, a greater breakthrough on the employment front and distributive justice front is now overdue It is overdue not only because these objectives are not being realised—unemployment problem is increasing—but because of the objective reality that the modern industrial structure now faces a demand problem which cannot be solved without an injection of purchasing power at the bottom

So far as the Planning Commission is concerned, employment generation will be related either to assets creation or to production. There is nothing on the cards which will create employment without these things, namely, production or assets creation. I may add that the strategy of the planning methodology now is to calculate carefully the employment content of alternative investment allocations and choose the allocation which, while satisfying certain norms of productivity and resource availability, subject to those constraints, increases the employment content. One of the simple complaints against the previous planning process was that the employment content in detail in terms of input-output sector was not even calculated or if it was calculated it was not presented. Increasing the employment content of investment allocation is one approach. The second approach is that since mere sector planning can leave large parts of the country still suffering from very chronic unemployment and poverty, in such areas sector planning will have to be supplemented by direct area planning. So it is a twofold movement of maximising the employment content of investment allocation and supplementary area planning in areas infested with very heavy unemployment rates of the order of ten per cent and very heavy poverty that we are trying to follow.

I think the roles are clearly settled The non-plan outlay is definitely allocated by the Finance Ministry, investment outlays on new schemes are decided by the Planning Commission and this division of labour is likely to continue. There is a logical question which we should face pretty soon, that in certain sectors like health and education, the distinction between assets creation and continuation of activities is a thin one and we have already been thinking of finding a mechanism whereby the allocation of non-plan and plan outlay, investment consumption outlay in some such grave sectors is jointly made by the concerned agencies.

No one in the Planning Commission takes the view that the demand problem equally affects the whole industrial structure. In fact I would go further and say that a part of the idle capacity, say in the capital goods sector, is simply due to the fact that public investment is decelerated Therefore, if infrastructure and social service growth is accelerated again, this sector should have larger demand. Then there is a

part of the consumer goods large scale sector which is not suffering from the demand problem. But there is a part which is suffering and there is a part of the capital goods sector—engineering industries and textile machinery—which is suffering from a demand problem because their final products, certain varieties of fine cloth are suffering from a demand problem. The demand problem is desegregated and the approaches to the solution of the demand problem proposed by us will be desegregated.

Foreign Capital

In our democratic system a lot more appears in the press than is really happening. So far as the Planning Commission is concerned I can only say that no hard projects have yet been received by us for consideration involving substantial amounts of large foreign capital, though press reports have been appearing. If and when we do receive some hard proposals, carefully worked out, we would raise the question of self-reliance, the question of the balance between foreign and domestic resources, the terms of foreign collaboration, the question of depletion and depletable resources, the employment content of those projects. Therefore, I think it is premature to assume that hard projects of this kind already exist and are under active consideration I think the press has been having more of loud thinking on this subject or some people have been having loud thinking but we have not come across hard proposals and if hard proposals come, the Planning Commission will not fail to raise all the hard questions.

Let me talk a little bit about the novelties. One of those things will be an escalation of the irrigation programme which is a key to agricultural growth and indirectly for industrial growth The second thing will be not that one textile industry or any other industry—at least as far as the Planning Commission is concerned will be closed down or not considered at all. But in general terms I would say that in all industries with a mass employment potential a question has certainly arisen about the distribution of new capacity between multiple techniques which co-exist. And, therefore, the Planning Commission is certainly working in collaboration with the concerned ministries about the ratios in which new capacity or new output may be allocated between multiple techniques in a few selected industries where the actual or the potential employment is very high. This distribution will still be subject to cost considerations but also subject to employment constraints. In an economy like ours, if we only minimise cost we do not create sufficient employment. On the other hand if you only worry about employment, the cost differences may be three hundred to four hundred per cent. So the technical work that is going on is to optimise with this joint constraint of cost minimisation subject to certain employment goals.

Land Ownership

The Planning Commission certainly continues to be obsessed and will continue to be obsessed and I am certainly obsessed with the need to change the structure of land ownership for its own sake and for the sake of efficiency of the irrigation capacity that we create In many parts of the country we cannot really get even minimum utilisation of water without realignment of holdings But I would add at the same time that while the structure of ownerships is being changed, it is possible to change the distribution of non-land inputs. Every one of the non-land inputs which the state agencies provide namely credit, fertiliser, the location of tubewells, the sale of water, the ownership of tubewells can be rigged systematically in favour of the small man. Therefore, I would say that we are thinking in terms of a twofold strategy. In the short and medium term and as the land ownership reforms are going on we will work harder on the redistribution of non-land inputs which can jack up incomes above the poverty line in a very short time. Some of the agencies are doing this in parts of the country.

Irrigation programmes are not defined unless you say who is going to benefit from irrigation. We are changing the balance between minor and major irrigation, we are proposing to change the balance even in the location of small scale outlets in favour of smaller people.

Hard Consultation

It is not true that there will be no policy frame. I think the numbers mean nothing without a policy frame and all the time we are doing as much work on the policy frame, as on the numbers And the degree of reality of those policy frame discussions will come from the fact that policy proposals will be made in hard consultations with the concerned agencies before we put out draft □

ROLLING PLAN

Chance for Basic Changes in Attitudes

Dr V Shanmugasundaram

THE masses as well as scholars in economics are now doubtless in the position of Alice in Wonderland or curiosity My good friends Prof Raj Krishna, Dr. Lakdawala and others evoke my appreciation on two counts It is not easy for an economist to sell a technical idea to his political boss Secondly a new government elected in a mass upsurge ought not to leave so comprehensive, so broad an economic platform as the Planning Commission, without any new major breakthrough which indeed is the concept of rolling plan.

But one should not be carried off his feet without recognising its pros and cons High expectations were raised, when Pandit Nehru, was advised by Prof. K T. Shah and others, during the 1930s or still earlier when Sir M. Visweswariah originated the concept of district planning and more dramatically still when the Planning Commission was established in 1950s But we know how false they turned out to be After three decades of planning in this country, we are looking for lame excuses and trumped up statistics to explain away stark poverty, increasing inequality and depradation So some people bemoan that the sacred cow, namely, the five year plan, is not sufficiently worshipped now. The cause should be best known to them. A comment was made by the former Prime Minister, that the abandonment of the five year plan amounts to making planning in India directionless. If the import is that the Soviet kind of rigid five year plan is abandoned,

it will not hold much water. The first plan was implemented for several years, before the document was made known by Pandit Nehru. Before the mouse of the fifth plan was let loose in a brief document a spell of a few ad hoc annual plans took place and a political denial of plan holidays was made. The Soviets have already started on ten year and fifteen year plans and the Soviet people now provide as many tons of foodgrains as there are people. After almost five year plans we are providing only hundred million tons food for 600 million people, a sixth of what is given to the people of the USSR or the USA

Irrelevance of Foreign Models

It is time we stopped quoting or following out of context international slogans or else we would soon end up looking for international experts to defend Valluvar's *Kural* in Tamil Nadu or Tulsi's *Ramayana* in the Hindi belt. I am equally surprised that the new planners have cited European experience in support of the concept of rolling plan This is giving a wrong defence of the document To be precise, on 22nd March 1974 the State Planning Commission of Tamilnadu gave its Chairman Dr. M Karunanidhi a ten year perspective plan covering the period up to 1983-84. It was a plan drawn by economists, industrialists and a civil servant of the status of Chief Secretary. Tamilnadu has thus already stolen the thunder and let us not hide this historical fact and distort it in respect of the importance of rolling plan in India If the federal idea of decentralised economic planning is the spirit which really underlines the Janata policy, they could well have called this a Tamilnadu strategy of rolling plan. This is Indianness in social science practice. Similarly the Planning Commission at Delhi could benefit by the West Bengal theory of financial decentralisation or the Maharashtra strategy of employment guarantee or the Punjab policy of agricultural entrepreneurship Let us stop defending and quoting irrelevant international models, unless it be for calculated political gains. The Swedish long term budgetting, the British practice of presenting a white paper along with the annual budget, Pakistan's seven year plan, the Russian five year, ten year or twenty year plans are not quite relevant to the Indian context. In which country do we have five million educated people awaiting jobs ? In which country are the wage differences between rural and urban areas in the ratio of 1 : 5 or 1 : 10 ? How can we think of international models when our health and sanitary cultures are dualistic—one which is meant for ultra modern people and the other which is meant for the poor and the weak.

Refinement of Long-term Plan

A rolling plan is not a negation of a five year plan or a ten year perspective plan. It is a refinement of a long term plan. Even a supersonic flight from Delhi to Moscow or New York, however pre-determined it be, is subject to dexterous manoeuvring of the pilot. In Indian planning we have accepted annual plans as intermediate points But what has happened ? Our targets were often dreamy. A plan grant supposed to be discretionary has become the substantial force in union-state planning relations As against a finance commission transfer of about eight hundred crore rupees, the discretionary planning commission grants and loans have assumed a magnitude of Rs one thousand crore in the early 1970s Consequently, planning by the Government of India has become a main instrument to threaten and strike fear in the machinery of state governments—virtually an economic instrument of political compulsions. My fear is whether the rolling plan would become one more monstrosity in union-state economic relations Let us consider the size of Andhra Pradesh or of Punjab In population several European countries are much smaller than each of them Whether it is an elementary school, a primary health centre or a college, the five year plans seem to have a very big say. This is bad enough as it is The fear is whether the rolling plan would make it even worse There was a time in Indian history when the voice of a British Resident in a princely state was considered to be a thunder Till recently, a whisper in the corridors of the Planning Commission has been more than a thunder in the economic departments of state governments. This position must change under the rolling plan.

Imperial Delhi

In respect of food production, groundnut, sugarcane etc our five year plans have not realised the targets. It looks as though we should think in terms of contiguous zones so that they could organise this planning strategy. For example, Tamilnadu, Karnataka, Kerala and Andhra could have power, water and agricultural land use. The suggestion of rolling plan implies that in unforeseen contingencies the economic plan will be properly adjusted and updated. Another requirement is that the imperial administration in Delhi has grown to such an extent that it needs to be dismantled With the modern instruments of technology like the telephone, airways, and the like, those in power in the centralised government of India could be more ruthless than the most powerful emperors in the past, British or Indian We have tasted it and suffered recently

If after what has been heralded as a second war of Indian independence, the non-congress wave has created new governments at Delhi and in state capitals the rolling plan should mean something of a new hope The aims like full employment, doubling per capita real income, ensuring social justice, decentralised planning and resource mobilisation, social change for economic development and promotion of cultural activities should be pursued steadfastly and not left to the whims and fancies of the annual rolling plan strategy.

Rolling plan has been caricatured by our esteemed friend Abu. the cartoonist, with our planners struggling to be stable on a fast moving roller. The maintenance of equilibrium between supply and demand, increasing wage claims by workers on the one hand and increasing prices demand by farmers on the other. Clamour for prestige oriented education and inadequate work force for reconstruction activities, are some of the forces in the opposite direction requiring reconciliation. Thus planning is tantamount to balancing on a roller The task is not easy To be efficient it requires better skills.

Monitoring

There is now emphasis on monitoring Let us not make a mockery of monitoring. We should have sufficiently independent and technocratic bodies which can render monitoring that is reliable. Independent agencies have often given in the past a truthful picture of our food production, whereas official statistics exaggerated it. Our demand for fertiliser estimated at four million tonnes, some thirty years ago, is still to be realised even up to fifty per cent. Our neighbour China has demonstrated a high degree of social and econo-

mic equality and in contrast the inequality is increasing in our country.

We have talked of self-sufficiency. But we are now the biggest seekers of aid abroad. Our output of plan literature is perhaps the largest in the world But the economic growth rate has been declining continuously. We have blamed the bureaucrats. But have we not placed on their shoulders far more responsibilities, often conflicting.

MULTI-LEVEL

I trust that the rolling plan implies a reassessment of the total provision and our external resources and the continuously changing situation at the district and block level We must study the saving rate, we must study also the rate at which we have to increase our real income and ensure full employment in urban and rural areas These aims should not be subject to rolling, faltering or rethinking A successful commander knows when to withdraw. But that is always occasional and rare. Even so, the annual rolling plan should be restricted to a few issues Planning at the grass root level means planning at the smallest micro-level and, therefore, it is necessary for us to take in the task of multi-level planning. Among all the vested interests, the worst is the wrong idea. If rolling plan means a technique of evading the tasks of reaching social goals and economic justice to the poor and causing uncertainty it is not welcome On the contrary if we could take it as one more scientific step to make planning decentralised and therefore, easy for effective implementation and monitoring for annual revision, we welcome it

FEDERAL POLICY

Economic planning in the new set up should grapple with different political party programmes We have today governments and political parties in different parts of India. Antony of Kerala, M G.R of Tamil Nadu and Jyoti Basu of West Bengal would like to have specific emphasis on the plan programmes and this must be conceded in the rolling plan. An inter-state organisation representing different state governments should monitor the public expenditure of the Government of India and its fiscal management. This has evaded attention for a long time and the Finance Commission that is now functioning must take note of it. Article 282 of the Constitution states that the Union or a state may make any grants for any public purpose, notwithstanding that the purpose is not one with respect to which Parliament or the legislature of the state as the case may be, may make laws This has caused chaos in the past. Let us put an end to it

Statistics has been quoted to show that some high targets have not yet been realised. Recently Prof. Raj Krishna also referred to it. I hope he does not mean by this that the targets will be downgraded. Our steel output of eight million tonnes should be contrasted with 140 million tonnes in Japan, with much smaller manpower and iron ore resources Small indeed was our coal target of 135 million tonnes in the Fifth Plan, but it was reduced further to 124 million tonnes By lowering of targets how can we turn the corner in respect of thermal energy needs ?

Capital is so scarce that we have to maintain it with considerable care. The rolling plan should take particular note of this.

Our Prime Minister is keen on enforcing prohibition. We know that in Gujarat and Tamilnadu for nearly 30 years, we have followed this policy, and each has lost nearly Rs. eight hundred to thousand crore in this period.

NEED FOR NEW PRECEDENTS

The Prime Minister is shortly scheduled to consult State Chief Ministers. It would be a welcome step in the right direction if new and healthy precedents are established by each of the spending departments of Government of India and of the state government in ensuring that there is fiscal discipline and good fiscal management There ought to be sufficient authority and certainty in respect of planning bodies in different parts of India within the framework of the five year or ten year plans and subject only to marginal changes in annual planning Let us not repeat the earlier mistakes. Our past annual plans meant horse-trading for political reasons and placing the poor man in jeopardy □

For a National Water Policy

C.C. PATEL

WATER, THOUGH abundant in nature and renewable, has a limited source. It has no substitute but its use can be optimised by resorting to latest technologies. It is here that engineers and experts have to use their ingenuity While our rivers carry about 1500 million acre feet of water, due to topographical and other limitations, present assessments place the utilisable flow at only about 540 million acre feet plus another 200 million acre feet from ground water. The present assessments are that the eventual irrigation potential may be 107 million hectares, or just about half of the cropped area in the country.

Apart from irrigation, water is also needed for domestic and industrial supply, for cooling of thermal stations, hydro-power generation, inland navigation, waste disposal, recreation and environment. There is also the need to control the destructive aspect of flow like flooding and drainage congestion.

The unequal distribution in space and time of the available water supplies poses problems which have to be faced and solved using the latest technologies Preservation of water quality and prevention of water pollution are other vital areas which have to be covered by policy directions

Before policies are formulated, a framework needs to be evolved to ensure that policies are not only most appropriate but are capable of being implemented speedily Wherever feasible, cooperative structures should be built up so that planning, implementation and operation of programmes necessary for water development and use, are prepared jointly whether they pertain to distribution of water or marketing or storage or even crop planning. Policy measures may advantageously include economic incentives so that more efficient units are rewarded. This would provide built-in correctives for maintaining desired balances. Suitable incentives would have to be given for accelerating the development of economically backward areas, including tribal areas. Also special priorities may have to be given for drought prone or desert areas. Representatives of the public have to be associated in decision-

making. Legislation should be resorted to more for keeping overall control and maintaining a climate in which deterioration can be held within certain limits.

Priorities of Use

A water policy has first to recognise the priorities for use. It has been universally recognised that no utility enjoys perpetual priority or preference and when circumstances change, priorities have to be reviewed. Even so, if planning has to be carried out for optimum use of the available resources, it is essential to lay down the priorities of use of water. Generally, water required for drinking and domestic uses has to be given the highest priority. The quantity of water required for this purpose is relatively small.

Next to this, water required for industrial use would generally enjoy priority. However, in water-short and drought-affected areas, certain minimum levels of irrigation may have to be given priority in order to stabilise the economy. As a policy, water intensive industries may have to be located in areas where water is available in plenty (taking into consideration sites for discharging of effluents and the treatment of effluents). Industries, on the other hand, particularly in water-short areas should be based on economic use of water and should resort to recycling of water wherever feasible The treatment of effluents should be such that it is possible to use that water, after dilution if necessary, for agricultural and other purposes

Next, irrigation generally enjoys priority as compared to water use for hydro-power generation, although, as far as possible, multi-purpose use of water should be planned, aiming at maximum use of water for both irrigation and hydro-power. Where, however, water is essentially required to meet reasonable and minimum requirements of irrigation and if it is not available in full or part for hydro-power generation, deletions or curtailments of hydro-power benefits become necessary. Usually, during the initial period of development of irrigation hydro-power benefits in a much larger measure are available and as irrigation develops, hydro-power plants generate less quantum of power but can continue to provide useful peaking capacity. This is a favourable feature and should be component of any policy decisions regarding water planning.

Generally, navigation, recreation, and development of fisheries form part of the multi-purpose development of water for drinking water supply, irrigation, flood control or hydro-power generation; and these incidental benefits require to be exploited to the maximum by resorting to such policies as will permit optimum use and prevent abuse of water. Some degree of control or legislation is called for to optimise the development of reservoirs and their shorelines for various purposes

Priorities assigned at one place may not necessarily hold good at another place. Similarly, in course of time, the priorities may have to be changed Water policy has, therefore, to be flexible and calls for periodic reviews

Systems Approach

Water being scarce and there being a number of competing demands on it, a number of alternative plans for development have to be examined. For this purpose, a systems approach should be resorted to and suitable methodologies evolved taking into consideration technical socio-economic, environmental and other considerations

The history of water development all over the world has shown that planning, which used to be confined to individual projects, gave way to the concept of river basin planning and then to regions and then to countries as a whole Planning on a national scale is inescapable if we have to aim at the balanced development of the various parts of the country. Any water policy has, therefore, to take into account the fact that there should be freedom to plan on the national and regional basis disregarding the political boundaries of the constituent units This naturally leads to the question of what the appropriate agency would be to prepare such plans In our country, in many instances, states plan development of waters without due regard to the needs of the other basin states For instance, a state may plan to use water for hydro-power generation by diverting it into a water surplus basin or to the sea. This may help the concerned state in providing cheap hydro power but this would deprive use of much needed water for agriculture and other purposes in other states. Similarly, a state may plan intensive irrigated agriculture which may not even fully materialise but which would restrict the use of water either within the state or beyond its boundaries.

One-third of the area in our country is drought-affected which presents major problems. The availability of water in most cases would ultimately decide the level to which these areas, particularly the rural ones, can develop their economy Removal of imbalances in the regional development has been one of the important objectives of the government. Backward and less fortunate areas have to be developed at a faster rate.

Planning of water resources, therefore, assumes great importance It has to be remembered that once major structures are built or water use is established, it is either not possible to change it or augment the benefit potential except at prohibitive costs.

This leads to the conclusion that the overall planning of the development of water resources has to be the responsibility of an agency which is not connected with any of the states. In other countries, organisations which are called by various names like river basin authorities or river basin commissions, attend to this task

States' Cooperation

As water is to be used in the states, the closest association of the states at the grassroot level is necessary so that the needs of every state and area are fully taken into consideration and the views of the states on planning are also given the fullest consideration while evolving plans for optimal harnessing of available waters.

In a number of cases storages are located in one state while the benefits accrue to the other The master plans for water development have to be drawn up basin-wise and have to take into consideration the needs of the entire region with due regard to the availability of water in the adjoining basins. There are only a few dam sites in the country which can provide economic storages and these must be exploited fully so that the available waters are harnessed to an optimum extent. For this purpose, some difficulties of submergence have to be faced by some states for the benefit of other states within the country. A certain amount of give and take, in such cases, may have to be inter-woven in a national water policy.

Conjunctive use of ground and surface water is necessary, not only for enhancing the quantum of

water available for use but also for minimising the hazards of inadequate drainage and water-logging. This however, involves higher costs of water lifts. But where it is possible to use surface water, the economic disadvantages to the exporting state in foregoing the benefits of relatively cheaper flow water may have to be compensated in some way. The compensation could be made either by the beneficiary state or by the centre or by both. It is also the general tendency among the states to reserve water for future uses and assessment of such reservations are almost invariably inflated As a result, water continues to run to the sea without being used by any of the states Such a situation can be effectively met if the water is allowed to be used for beneficial purposes and such allocations are reviewed within certain limits as future uses are developed Any state, which later has to forego the established use, should be willing to resort to some reduction which should be feasible of achievement. For instance, the states should be able to economise in the use of water in the state or take to costlier sources like ground water. Even otherwise, it may not be in the national interest to reserve water for a long-term future use which cannot be assessed with any accuracy at present and deprive the use of water in the near future by other areas A suitable policy may have to be laid down so that any such distress, if and when it occurs, is shared both by the area which enjoys the benefits at present and the area which has to forego the benefits in future

Ecological Aspects

While considering extra-basin diversion of water, any adverse environmental and ecological aspects of such diversion on the exporting basin should also be carefully taken into account. It has to be recognised that, when water is limited, it has to be supplied to such areas where it can bring maximum return to the country. Of course this principle cannot be extended too far because the other rural areas affected in the exporting basin may not have any alternative source of gainful employment. These are policy issues and for getting the best results, for certain areas, where the use of scarce water cannot bring optimum results, economic development will have to be mainly based on other resources

It also needs to be laid down that inefficient use of water cannot be allowed to continue, particularly when there is demand of the same for beneficial use elsewhere. The inefficiency will have to be eliminated by modernisation of existing systems, reduction of wastage and economy in water use, as well as optimum use of available water through changes in cropping pattern and conjunctive use of ground water

Norms for Intensive Irrigation

The question of an appropriate intensity of irrigation was considered by the irrigation commission and the national commission on agriculture and they have recommended certain norms for adoption. Where water is in plenty, its use should be aimed at maximum production per unit of area. Where the water resources available are insufficient to meet irrigation requirements of cultivated land, the policy should aim at securing maximum crop production per unit of water. Of course, the economies of irrigation have to be considered and a reasonable intensity must be permitted so that the cost effectiveness of the project is not affected. In drought affected areas, the emphasis should be on the maximum area served that is, the greatest good of the largest number should be ensured to the extent practicable. A policy in this regard is called for, which can only be decided after studying in detail the positions obtaining in various areas of the country

Even today the industrial effluents pose a significant threat to the established or prospective source of water supply The position in future can be worse While the water pollution control act has been passed and is being adopted by several states, it is essential to have a policy on a national basis which will create awareness of the urgent need for environmental preservation so that abuse of water is stopped and sweet water sources are protected from any type of pollution Monitoring of water quality at various locations is very important and this has to be introduced as soon as possible.

Case Studies

If a broad national policy is evolved which is supported by scientific assessment of representative case studies, it would help greatly in preparing master plans for optimum development of waters and many potential disputes could be nipped in the bud. However, there may still be situations when some disputes or differences might arise. These could be discussed at a national forum for finding amicable settlements safeguarding various interests.

In brief, a national water policy has to take into consideration the situations obtaining in different regions and evolve certain principles and guidelines, applicable under different conditions and promoting the exploitation and optimum use of water, which is increasingly becoming a scarce resource. The policy has to lay down norms for preservation and enhancing the value of waters and for creating better environment in general. Owing to many complex factors water policy cannot be laid down with precision in the immediate future but it has to evolve, after taking into consideration, precedents and future needs in consultation with the state governments. Further, such a policy cannot be static and permanent but has to be reviewed from time to time, and modified whenever necessary in the light of experience and emerging technological developments

Statement of Objectives

The need for a national water policy and integrated planning for water is universally recognised and a number of advanced countries have set up organisations at the national and regional levels for this purpose The U N. water conference, recently held in Argentina, has suggested that each country should formulate, and keep under review, a general statement of policy in relation to the use, management and conservation of water, as a framework for planning and implementing specific programmes and measures for efficient operation of schemes. National development plans and policies should specify the main objectives of water-use policy, which should in turn be translated into guidelines and strategies, sub-divided as far as possible, into programmes for the integrated management of the resource.

While we have considerable experience in building projects of unique scope and magnitude, we have lost sight of the need for involvement of the public in our projects. No project can succeed unless it meets the needs of the people and fulfils their felt wants. We have to think carefully and devise

measures for associating the beneficiaries from the planning stage and take their views into account.

ECONOMIC PROJECT FORMULATION

Requisite attention is not being paid to project formulation at present. The best talent available in the country has to be deployed for this task, as this is the stage at which real economies can be achieved by the selection of the most economical site, or the most appropriate type of structure, or the best technique of construction. Comprehensive data availability and the experience of other projects are invaluable in this connection. This expertise has to be preserved and expanded.

Our maintenance and operational aspects have not kept pace with the developments. There has been a veritable explosion in agriculture and it is necessary for irrigation systems to cater to these needs. In this context, a careful review of our existing schemes and streamlining their maintenance and operation procedures and their modification or modernisation to meet the needs of present-day agriculture, are extremely urgent. This inter-disciplinary task has to be given immediate attention, so that optimum use is made of the available waters and wastage/loss prevented.

There are a number of modern management techniques which should prove very useful in our construction works The unity of close monitoring of projects, cost control cells, scientific planning of inventories and stores and good communication facilities have been demonstrated in many advanced countries and we should make full use of these innovations □

A MINISTRY AND A BOARD FOR ROADS

Dr H C. MEHROTRA

AND

Dr D K KULSHRESTHA

IN TWENTYFIVE years since 1950-51 the total road length in the country increased three and a half times, 522,000 kms. of surfaced and 701,000 kms of unsurfaced roads. In terms of area and population the total road length in the country worked out to 29 8 kms for every 100 sq kms of area and 181 kms for every one lakh of population in 1969-70 By 1975-76 the length of pucca roads was 36 kms for every one lakh of population and 201 kms for every 100 sq kms of area. Still India is far behind other developing countries of the world. Maintenance is also poor, mainly because of responsibility being shared by many authorities like the public works departments, local bodies, canal departments and military engineering services. This also accounts for a number of uncompleted road links unbridged rivers and canals even on provincial roads and national highways.

Construction and maintenance of roads is a state subject. It is financed however, from the central road development fund, outlays fixed in five year plans, special grants from the central government for approved schemes. State governments and local bodies also contribute funds to an extent. All this is inadequate. The proportion of road expenditure to the road revenue has been as low as 30 to 40 per cent in the last decade In 1969-70 it was only 31 per cent as against 218 per cent in Japan, 140 per cent in Norway, 102 per cent in Germany, 73 per cent in Ceylon and 61 per cent in France In our country the percentage of road expenditure to national income is also the least being 0 63 against 3 5 in Canada, 2 8 in Japan; 2 3 in the U.S.A , 1 1 in France, 4 0 in Norway, 2.9 in Germany, 2 8 in Australia; 1 5 in U K.; and 0.96 in Ceylon.

Financial resources should be raised from betterment levy on the properties standing on road sides, whose rental value increases by the improvement of roads; allocation of cent per cent revenue derived from roads and road transport for road development; and interest free central government loans The Taxation Enquiry Commission 1953-54 suggested that 25 per cent of the levies on motor spirit and motor vehicles should be transferred to the state road funds and 25 per cent of the excise duty on motor vehicles and their components should be transferred to the rural communication funds This should be done There should also be provision in the defence budget for road construction and maintenance Further the chief engineers, while finalising the twenty year road development plan suggested a special land cess to accumulate funds for road development. This is being levied in many states like Andhra Pradesh, Bihar, Maharashtra, Punjab, and Tamil Nadu. It should be levied at a uniform rate in the country as a whole. Finally every effort should be made to cut down the cost of road construction and maintenance.

The Central Road Research Institute should take over road research work for the country as a whole and guide the research stations in the states A separate road research training centre should be set up to train road engineers and allied personnel

COORDINATION

There should be only one authority responsible for the construction and maintenance of roads throughout the country. If this is not possible, the state governments should be held responsible for all types of roads within their territories, while the National Highways should be under the charge of the Centre and no road should be left in the hands of the local bodies. Local administration of roads by village panchayats and blocks should be totally abolished as they are unable to provide adequate finance or to maintain highly qualified manpower and knowhow for road development and maintenance Coordination among all the states for road development and maintenance should be streamlined. A central road board with branches in all the states will serve useful purpose

The board should collect statistics for the country as a whole and chalk out long term road development programmes and its state offices should look after the roads within their jurisdiction

At present the road policy is determined by the roads wing of Union Ministry of Transport and Shipping A separate ministry for roads and road transport like the Ministry for Railways should be set up and separate road budgets should be prepared and placed before the Parliament

Road development priorities should be, in that order, maintenance of existing roads. conversion of fair weather roads into all weather roads, construction of new roads keeping in view the potential economic development of the country and qualitative improvements in existing road surfaces □

PLANNING FOR MEGHALAYA

A Himalayan Problem

Dr J. N. Mongia

THE EMERGENCE of hill areas as a distinct entity in the planning process, is a recent phenomenon The biggest problem for development planners in the terrain.

On a rough estimate, nearly five crore people or about eight per cent of India's population live in the hill areas Geographically, these areas cover about 5 14 lakh sq kms. which is nearly one-sixth of the country's area

All the hill areas in the country share, in varying degrees, an inherited back-log in industrial development and a vast and rich but unexploited mineral and forest resources Agriculture is steeped in traditional practices which vary from the method of shifting cultivation or 'jhum' to cultivation without the assistance of improved implements and agricultural inputs like seeds and fertilisers. The horticultural potential has developed in certain areas only The majority of the people are below the poverty line Another marked feature of these areas is that most of them fall in strategic zones where development of infrastructure, particularly, a good network of roads is necessary from the over-all point of view of national security

Present Indicators

Meghalaya is practically a hill state with a population of 10 12 lakhs (according to the 1971 census) Eightyfive per cent of the people live in rural areas The density of population per sq km in the state was 45 in 1971 having risen from 33 in 1961 The ratio of urban population rose from 2 83 per cent in 1901 to 15 27 per cent in 1961 but dropped to 14 55 in 1971

In 1971, work force participation rate was the highest in Arunachal Pradesh (57 65 per cent) followed by Nagaland (50 75 per cent) with Meghalaya occupying the third place (44 17 per cent) It compares favourably with the all-India level of 32.91 per cent, nearly 79 per cent of the workforce in Meghalaya were cultivators or agricultural labourers. Compared to the all-India level of 69 6 per cent The share of other occupations in percentage terms in Meghalaya was livestock, forestry (2 76 per cent), mining and quarrying (0 15), manufacturing-household and other than household (2 46), construction (0.89), trade and commerce (2.91), transport, storage and communication (1 34), and other services (10.52).

The participation rate among men in Meghalaya in 1971 worked out to 53 21 per cent and among women was 34 57 per cent. More of women workers (88.82 per cent) were engaged in agriculture than men (43 0 per cent)

During the decade 1961-71, no significant difference in regard to the distribution of the work force over various activities was noticed The large increase in the number of agricultural labourers in 1971, as compared to 1961, was on account of conceptual differences

The estimates of the state domestic product and per capita income for Meghalaya are still under preparation However, on the basis of whatever information is available, it can be inferred that, in 1973-74, Meghalaya had probably the lowest per capita income (Rs 596 at current prices) in the country. The all-India figure in the same year was Rs. 851 80

Backward State of Agriculture

Of a total geographical area of 22 5 lakh hectares in Meghalaya, only two lakh hectares are available for cultivation—a mere 8.8 per cent of the geographical area Practically, nothing is known regarding its distribution between various uses or about productivity of agriculture Only 26 per cent of the cultivated area is under irrigation Holdings are small in size and techniques of cultivation absolutely backward, resulting in low farm incomes

Between 1972-73 and 1975-76, the gross cropped area in Meghalaya increased by about 10 per cent There was an increase in area under high-yielding varieties during 1973-74 to 1975-76, under all the three crops—paddy, wheat and maize Similarly, the area under soil conservation also increased between 1973-74 and 1975-76 by about 37 per cent Consumption of fertilisers, however, declined. Consumption of pesticides went up by about 50 per cent. There were encouraging trends in the matter of distribution of tractors as well as power tillers. The foodgrains production went up from 1.25 lakh tonnes to 1.35 lakh showing a growth rate of four percent. In the fifth plan, the highest priority has been assigned to agriculture and allied programmes The outlay on these programmes is Rs. 16 94 crore which is 20 1 per cent of the state's outlay. This includes Rs. two crore for minor irrigation

Low Industrial Development

The economy of Meghalaya is primarily agrarian but the state is endowed with abundant and rich natural resources in the form of mineral wealth, forests and horticultural crops. Limestone deposits of both cement and chemical grade are estimated at 3,000 million tonnes, coal deposits at 550 m tonnes, sillimanite of the best quality (the largest single deposit known in the world) at about two million tonnes in the Khasi Hills district, and clay suitable for the manufacture of high grade glass at 100 million tonnes. Besides, a very large area of about 8.5 lakh hectares of forests exists

When Meghalaya was formed in April, 1970, there were only a small cement plant at Cherrapunjee, a bone meal unit at Burnihat, two tiny fruit processing units and some insignificant small industrial units including traditional small and cottage industries

In 1971, the Meghalaya Industrial Development Corporation (MIDC) recommended 50 industrial projects, both need-based and resource-based. These ideas have been further enlarged by identification of other areas by the Regional Research Laboratory, Jorhat and a study team of the Union government

Small industries with their high capital-output ratio, relatively unsophisticated technology and short gestation periods have a major place in the priorities for development Special efforts are being made to foster the growth of small-scale units in the State. The state government has created industrial estimates at two places and an industrial area in another MIDC and the Directorate of Industries also arrange procurement and distribution of scarce raw materials to small scale units which do not have funds to lock up in

large amount of raw materials inventory at a time. At the end of 1976, the number of registered factories stood at 49. The maximum employment in these factories was 3,058 in 1976

A large portion of the state is still to be covered by geological surveys. Even some of the known mineral deposits which have been surveyed in a preliminary manner in the past, will rejuire further detailed investigation for the purpose of assessing the reserves, quality and suitability for mineral-based industry The geographical location of the state vis-a-vis the rest of the country, and the concentration of minerals in the interior close to international borders and away from the state's links with the rest of India, are likely to make any mineral-based industry in the state unviable, if measured by all-India standards. If the state is to claim any position in the industrial map of the country at all, a judgement-oriented policy will have to be adopted and special incentives given to prospective entrepreneurs to attract them to the remote corners where minerals are in abundance.

Poor Communications

Before India became free, Shillong, the capital of Assam, was connected with Gauhati on the northern side by a pony cart road which was subsequently developed in stages into a motorable road and with Sylhet on the southern side. There was a road from Cherrapunjee to Shillong. Tura and Jowai were not connected by motorable roads

With the partition of country, areas on the southern side of the state lost their traditional markets and this had a crippling effect on the economies of these areas. Further, owing to partition, the districts of Cachar and Tripura were cut off from the rest of the country. Consequently, the Assam government made a beginning by constructing roads, linking those border areas as well as Shillong with the districts of Cachar and Tripura via Jowai. With the limited resources available, the then government could not make much headway in providing roads to the interior and rural areas of the state.

In Meghalaya, in the absence of rail and waterways, roads are the only means of communication. The road sector, deserves special consideration in this hilly state, where road communication is a pre-condition for development of agriculture, industry and other sectors.

As per country's 20-year Road Programme, 1958, drawn up for the country, the districts of Garo Hills, Khasi Hills and Jaintia Hills, then parts of Assam, were found to require 6,289 kms. of all-weather motorable roads by the end of 1981. At the beginning of the fifth plan, Meghalaya had a road length of 3091 kms which was expected to rise to 3,315 kms. by the end of 1976. Thus, the balance of 2,974 kms remains to be completed by 1981 With this road perspective, the fifth plan was originally prepared with a proposed outlay of Rs. 43 crore aiming at construction of 3,000 kms of new roads and black-topping of 658 kms of existing roads. The Planning Commission has approved an outlay of Rs 24 40 crore which includes Rs 1.82 crore under the minimum needs programme

The prohibitive cost involved in the electrification of rural areas in hilly terrains, makes most of the electrification schemes look *ab-initio* uneconomic. But the criterion cannot be cash returns or cash flows but the social, cultural and economic benefits which are likely to accrue to the nation, in general, and the concerned areas in particular

Allocation for power development in Meghalaya in the fifth plan is Rs four crore which includes Rs three crore under the minimum needs programme for electrification of 1,000 villages. All the growth points are expected to be covered with sub-transmission net work

Forest lands are far away from the transportation arteries. Inaccessibility comes in the way of exploitation of many of the potentially available resources They may have to wait till the forests are linked with motorable roads

The shifting cultivation or 'jhuming' in the state is highly wasteful involving "slash and burn" of the vegetation at random Generally, after two seasons, the cultivation is abandoned and fresh plot is selected No precautions are taken and the fire in the 'jhum' plot frequently spreads to the standing vegetation as well When the 'jhum' plot is abandoned, it is devoid of any cover The heavy rains cause havoc on these exposed soils robbing them of their fertility Due to population pressure, the 'jhum' cycle has now been reduced to three or four years as against the required minimum of eight to ten years As the cycle gets shorter, the plot has no time to recoup its original fertility and, therefore, more area is needed for 'jhum' in order to get a given yield to sustain a 'jhum' family. Keeping all this in view, the plan has allocated Rs. four crore for soil conservation including control of shifting agriculture

Though it has been acknowledged that horticultural development and the growing of cash crops offer the most preferable line of action for agricultural devolopment in the hill areas, nothing much can be done until communications are developed

Fruit-based Industry

The development of agro-based industries has also lagged behind in Meghalaya In spite of considerable production of pineapple, oranges and other fruits, no fruit-processing industry worth the name has grown in the state barring a few small units Low technology industrial units may be set up in the interior areas so that the difficulties of transport and communications may be overcome. The small units could be gradually enlarged Another view is that, despite difficulties in communications, there is sufficient scope for large-scale and medium-scale food processing units in the state

Hill areas, in general, are also rich in stream waters. Since these are usually fast-flowing waters, they are not of much use for irrigation, but they have tremendous hydro-electric potentialities. However, in the hill areas generation is one thing, transmission quite another and unless the latter is tackled properly, there is hardly any gain in generation merely

Meghalaya is endowed by nature for taking up fisheries on an extensive scale Fish culture could be, thus, an important possibility for future development.

The devlopment of small-scale industries and handicrafts is important in the hill areas from the point of view of spreading the benefits of industries to those living below the poverty line However, some important impediments in the devlopment of this sector are the lack of proper marketing arrangements and absence of the latest appropriate technology

The future strategy should give priority to opening the interior with an efficient system of roads, intensification of agriculture, a shift to cash crops, fruit cultivation, and development of infrastructure. ☐

?onsolidation, Not ?xpansion

DR. M. M. BHALERAO
&
M. K. VERMA

THE LAND Development Banks (LDBs) have complet-d more than five decades of his-ory in India. However, they did iot make much progress before the dvent of independence. A quarter entury of planning has witnessed onsiderable progress of LDBs.

It can be seen from table (next age) that LDBs have significantly nobilised resources (debentures) nd given loans to individual farmers rom the third plan onwards.

The all India rural credit review ommittee estimated the require-nents during the fourth plan for nvestment credit of a long-term iature to be of the order of Rs. 1,500 crore. Out of this Rs. 725 rore was to be for minor irrigation, Rs. 25 crore for reclamation of vaste land, Rs. 150 crore for soil conservation, Rs. 300 crore for ieavy machinery and implements, Rs. 75 crore for orchards and plant-itions, Rs. 125 crore for area pro-grammes and Rs. 100 crore for ural electrification. The target for oans to be issued during the fourth plan was fixed at Rs. 900 crore, out of which Rs. 700 crore was to be under the normal lending pro-gramme and Rs. 200 crore under special development schemes financ-ed with assistance from the agri-cultural refinance corporation. The oans issued to individual cultivat-ors during the fourth plan were esti-nated at Rs. 775 crore.

The quantum of finance expected o be made available for agricultural levelopment through short, medium und long-term wings of the coope-ative credit structure during the ifth plan is detailed in table (next page).

The investment credit to be pro-vided by LDBs in various states during the fifth plan is shown in acing table. The states have been livided into three categories on the basis of per hectare outstanding oan amounts of central LDBs as on 30th June, 1971. States where he outstandings are more than Rs. 60 per hectare are on the A category, those where the out-standings work out to between Rs. 30 and 60 per hectare in the B category and those having less than Rs. 30 per hectare in the C cate-gory.

In the sixth plan, the quantum of finance to be provided by LDBs will have to be more than one and a hilf times in the fifth plan, be-cause of the increased cost of mate-rials and machinery required for building up long-term assets on the farm.

The Madhava Das Committee (1973) as well as the Hazari Com-mittee (1975) recommended the in-tegration of short, medium and long term credit. The local conditions in different regions and the level of growth of LDBs in different regions have to be kept in view. Efforts will also have to be made for greater coordination between LDBs and commercial banks. The procedures will have to be further simplified.

TARGETS FOR LONG-TERM LOANS TO BE PROVIDED UNDER THE FIFTH PLAN

(1974—79)

S. No.	*State*	*Fourth Plan likely achieve-ments*	*Targets for long-term loans in the Fifth Plan*
Category A			
1.	Andhra Pradesh	86 15	130.00
2.	Delhi	1.04	1.50
3.	Gujarat	95.00	120.00
4.	Haryana	50.00	35.00
5.	Maharashtra	130 00	140.00
6.	Pondicherry	0.60	0.80
7.	Punjab	82.00	110.00
8.	Tamil Nadu	112 00	150.00
		556 79	687.30
Category B			
9.	Karnataka	70 00	140 00
10.	Kerala	13 50	30.00
11.	Uttar Pradesh	126.00	190.00
		209.50	360 00
Category C			
12.	Andaman & Nicobar Islands	—	0 05
13.	Assam	0.70	14.00
14.	Bihar	42.21	100.00
15	Chandigarh	—	0.02
16.	Goa	0.09	1.00
17.	Himachal Pradesh	2.00	5.00
18.	Jammu & Kashmir	2.44	4 00
19.	Madhya Pradesh	45.00	140.00
20.	Manipur	0.05	0.50
21.	Meghalaya	—	0 50
22.	Nagaland	0.10	1.00
23.	Orissa	20.04	81.00
24.	Rajasthan	23.00	60.00
25.	Tripura	0.05	2.00
26.	West Bengal	5 34	40.00
		141 02	449.07
	Grand Total	907.31	1496 37

LOANING OPERATIONS OF LAND DEVELOPMENT BANKS DURING PLAN PERIOD

(Rs. Crores)

S. No.	Particulars	Target for loans to be issued	Debentures Issued				Loans issued to individuals
			Ordinary	Special	Rural	Total	
1	First Five Year Plan (1951-2 to 1955-6)	.	8		.	8	11
2	Second Five Year Plan (1956-7 to 1960-61)	25	22		3	25	37
3.	Third Five Year Plan (1961-2 to 1965-6)	150	127	9	10	146	166
4.	Annual Plans (1966-7 to 1968-9)	275	223	27	8	258	300
5.	Fourth Five Year Plan (1969-70 to 1973-74)	900	549	273	6	828	775

COOPERATIVE CREDIT IN THE FIFTH PLAN

(Rs. Crores)

S No	Type of Loan	Fifth Plan Programme	1974-75		1975-76
			Target	Likely achievements	Target
1.	Short-term	1319 00	807 00	820 75	979 20
2	Medium-term	330 00	58 00	55 34	74 94
3.	Long-term	1500 00*	248 73	226 97	256 45

*Includes not less than Rs. 600 crore under special schemes of A.R.D.C.

More strict supervision will have to be enforced to avoid misuse of LDB loans Viability and efficiency of LDBs will have to be taken care of to ensure fuller use of ARDC loans routed through LDBs which will have to be made self-reliant with greater stress on mobilisation of resources through rural debentures. Staff training will have to be more effective and the distribution of work load will have to be rationalised and their pay scales and allowances will have to be revised with emphasis on incentives for efficient workers and punishment to the defaulters The sixth plan should concentrate on consolidation and strengthening of the LDB structure rather than on expansion.

MEDICINAL HERBS OF PITHORAGARH

RAMESH CHANDRA PANDE

THE northern part of Pithoragarh district in the Himalayan region of U.P. is a natural abode of a large number of medicinal plants which grow wildly in its dense forests This area with elevations ranging from 1,800 to 5,400 metres comprises the Munsyari and Dharchula sub-divisions, extending deep into the greater Himalayas The highest peaks of the Panchchuli group of mountains having altitudes ranging from 5,600 to 6,904 metres are located in this region. Owing to the humid and extremely cold climate, the vegetation of this region differs from those of the rest of the district. Snow-clad peaks, glaciers and a long stretch of barren land characterise the topography of this region

A number of rare species of medicinal herbs are found particularly at elevations of over 2,500 metres. Huge quantities of medicinal herbs are exported from these areas.

These rare herbs of medicinal value of the region constitute a rich resource in current pharmaceutical uses and are of great commercial value The establishment of a herb processing factory here would improve the economy of the area. Cultivation of medicinal plants in suitable localities can be taken up. In due course, these can develop into established farms. All this will provide greater employment opportunities to the local inhabitants.

A Case of Successful Marketing in Rajasthan

R. K. DIXIT

THE RAJASTHAN State Agro-Industries Corporation was set-up in August, 1969, to accelerate the pace of mechanised farming and make available to farmers agricultural machinery and other inputs on a large scale. The Corporation had to face a lot of competition from entrepreneurs already well established for a number of years.

In the context of a shift from "sellers to buyers" market the customers had become selective in their choice of material, looked for better service and were in a position to dictate their terms. The management of the corporation accordingly decided on quality control to give maximum satisfaction to its customers, through a specially created department. This department is engaged in the preparation of drawing and designs, making standards and issuing necessary instructions to the production department.

A scheme of agro-service centres, financed by Central government with State government participation makes tractors available for custom hiring, undertakes the repairs of tractors and makes available spare parts and fertilisers at fixed rates

The Corporation had trained 315 agro-service entrepreneurs up to March, 1975, out of which 253 have established their agro-service centres in different parts of the state.

Advertising in leading agricultural journals and newspapers, which normally circulate in the rural areas and posters and handbills have popularised the services offered by the corporation. The corporation, through these measures and through cost control research and development has been able to push up the sales from Rs. 12.56 lakh in 1970-71 to Rs 48 78 in 1974-75

Good marketing policy is a sensitive and effective tool in the hands of management. Marketing policy has proved useful to management in future planning and review of past performances.

The three great American vices seem to be efficiency, punctuality and the desire for achievements and success They are the things that make the Americans so unhappy and so nervous.

—LIN YU TANG

Twilight Areas

DR. K K. SINHA

THE AUTHORS of people's plan II call the new strategy a break on 'imbalance which has been responsible for continued stagnation alongwith inflation in the Indian economy'. To put it more clearly, the average rate of growth has been three per cent so far, of which 2.5 per cent is offset by population growth. The imbalance has caused rich sectors to grow fast leaving the poor sector poorer. Since the formulation of the second plan, doubts were being raised in respect of the path of 'unbalanced growth' chosen by the planners. According to Herchman Heavy industrial investment (as initiated in 1956 in India) caused 'dynamic tension' in one sector and the rest of the sectors chased it. But such crab-like movement has not occurred because the institutional base for such growth did not exist. As such the spread effect remained limited to urban pockets and a backwash effect prevailed in the rural economy.

The people's plan strategy is a choice rightly for more balance between rural and urban sectors, between agriculture and industry, capital and consumption goods, large and small industry and between income and employment. A shift in priority in the new plan from income and growth to consumption and distribution is, therefore, necessary. The balance according to the people's plan would be achieved if the necessary input and infrastructure is provided by the urban heavy industry sector while new incomes and employments are generated in the agricultural and rural industry sectors

It may be added here that the Indian plans have been unbalanced on the financial front also, and deficit budgeting has remained the rule. But this Keynesian technique of generating money incomes has only resulted in wage and profit inflation without increasing real resources. It has not generated sufficient impulses in the non-monetised rural sector except increasing pressure of demand by the organised sector for food. It has also created a wage gap between rural and urban workers stunting the growth of industries in villages. How strange is the fact that labour becomes so costly in a labour surplus economy ! A financial balance as visualised by the people's plan may go a long way in securing income distribution in real and equitable terms. The people's plan is, therefore, an experiment which must be given a fair trial especially when 25 years of planning has failed to eliminate the poverty of about 13 crore people in the village sector.

Perspective and Constraints

The 'balanced growth' strategy as visualised by the people's plan is a perspective of 20 years with ten years as an indicative phase (1978—88). The first ten years thus may indicate a fresh 'take-off' when a proper institutional base in rural India is created for receiving the stimuli of overall growth. The major doubts about the success of this plan do not, therefore, rest on the strategy chosen but on the way this is going to be implemented.

The major constraints inhibiting the Indian plans have been population growth, fiscal rigidity, stunting of rural institutions, unhealthy competition between public and private sector industries and existence of rural power blocks acting against land reforms. The people's plan is conscious of these factors but it does not explain precisely how will it deal with this.

In fact this plan also seems to depend upon centralised targets in the absence of rural panchayats which could have worked as development agencies The C.D. projects have exhausted themselves while the three-tier rural system of government has yet to take effective shape. In the absence of these rural agencies a rural-oriented plan for decentralised development will be more handicapped than centralised plans. Model panchayats on some optimum pattern have to be immediately set up.

Further the people's plan does not have an area plan which again is crucial for area development. How will the rural growth centres be created and what distances would form them. These questions require spatial hypotheses. A rural industrialisation scheme has to start with a list of viable industries arranged in order of their scale and distance from the lowest centres. This requires a detailed rural survey in respect of inter-village linkages and market locations. A market hierarchy has to be created in villages so that village activities could be fairly dispersed on optimum market norms. This involves restructuring of villages with different sizes of markets in between them.

The people's plan makes a reference to 'rational reforms' in respect of land distribution and land cultivation, but this has to be more specifically defined. A rural plan must make a start on a rational hypotheses regarding maximum and minimum land holding. For example let the plan work out the implications of land distribution with 30 acres at the maximum and three acres at the minimum ends. These may give out the optimum and basic sizes of holdings and a population spill over for rehabilitation in village industries at different wage rates.

The people's plan is also not very clear as to how it will avoid budget deficits. The success at the fiscal front would depend mainly on the pattern of taxation chosen. The major shift must take place to farm taxation which is obsolete and ineffective now. It is sterile more particularly for local governments which may have to bear the burden of ruralised development as proposed in the plan. The indirect taxes also have to be re-structured in a regional development scheme where inter-area flows of resources may have to be planned and taxes like sales taxes or multiple rate excises may hinder development.

Further, the sphere of the organised sector and the relation between private and public sectors have also to be reoriented according to the needs of a rural plan. A rural plan would require a thorough diversion of resources from its present use so that it flows to the rural sector or to such production as would provide the necessary infrastructure to rural production schemes. This may require private and public investments to be diverted to small industries in rural areas.

The fear in such diversion is the likely slump in overall growth rate. The people's plan estimates that the rate would slightly increase from 6 to 6.4 per cent annually with an increasing incremental capital-output ratio (ICOR) from 3.2 to 3.8 in four quinquenniums. This

ICORs of selected industries

Industry	*ICOR**	*Cottage Industries*	*ICOR@*
Shellac	2.18 to 2.22	Blotting paper	2.16
Food & agro	1.47 to 2 8	Soap from non-edible oil	0 39
Saw mill and wood	0.42 to 1 65	Village ghani	0.45
Mica	1.3 to 2.03	Palm gur	0.15
Utensils & fabrication	0 9 to 2 30	Cottage match	0.23
Small tools	1 25 to 3.86	Village tanning	0.35
Stone clay	0 47 to 1.0		
Small scale chemicals	1.32 to 1.84		

Source :—*A survey of Chotanagpur small and medium Industries during 1967-68 by the author.

@Building from below, A.I. Khadi and Village Industry Board ed. M.P. Desai, 1957, p. 28.

may be compared to the fifth plan growth rate of 5.6 per cent and an ICOR of 3.4. The assumptions about a slightly lower ICOR of the people's plan in the first five years are based on low capital requirements and short gestation period of the projects, non-inflationary expansion of goods and increase in social inputs which might substitute capital. The increase in the ICOR in the successive five year periods (more than the fifth plan figure) is, however, not explainable. If the increase is due to a shift towards more capital intensive technological options, how then is the people's plan strategy different ?

Does it mean that by the first five year period the rural unemployment problem would have been solved and labour substitution by capital would be possible. Further it is not clear why the ICOR should be so high even at the beginning when priorities have to change in favour of rural industries so much. It may be pointed here that the ICOR between the three plans is calculated at 2 4 and between 1961—68, at 3.7. A further reduction to two was visualised during the fourth plan. A list of ICORs of small and medium industries as well as of cottage industries is given to show that the people's plan estimates about the ICOR do not seem to be in tune with the strategy chosen by it.

It may be pointed out here that the ICOR of small industries tends to be lower than its average COR while ICOR in general tends to decline with development due to change in the efficiency of capital and labour and various institutional changes implicit in planning. This all suggests that the people's plan may require a revision of the design to make it more labour intensive.

It may also suggest that the changes in the priorities (which the people's plan visualises) vis-a-vis those in the fifth plan may also need a revision. The following table compares the priorities of the two plans :

	Fifth Plan	People's Plan
1. Agriculture	11.8	15.3
2. Irrigation & flood control	8.9	13.3
3. Education	3.3	7.5
4. Social service	12.1	23.1
5. Power	18.6	10.3
6. Industry & Mining	26.0	15.2
7. Transport & Communication	17.5	14.2

For an 'input-infrastructural-institutional base which the people's plan proposes to build the social service priority may be slightly reduced in favour of power and transport which are so essential for rural industrialisation. The rest would do well with a slightly more rural-oriented design of capital structure of industries.

An American editor worries his hair grey to see that no typographical mistakes appear on the pages of his magazine. The Chinese editor is wiser than that. He wants to leave his readers the supreme satisfaction of discovering a few typographical mistakes for themselves.

LIN YU TANG

Solar Cookers for Rural Kitchens

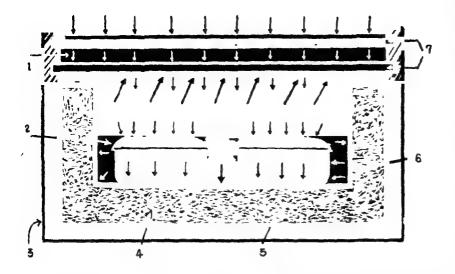
RAMAN PATEL

SOLAR ENERGY has passed the stage of experimentation in laboratories and is now being harnessed for heating of buildings in some countries. Experiments have also been made to use this form of energy for generating electric power to run water pumps. In France, successful experiments have been made to melt iron and steel by the use of solar energy. Long ago, Israel and Japan developed solar heaters to heat water and the same are being used on a large scale, in both these countries. However, we have still not reached a stage where solar energy can be utilised on commercial basis.

India, though a tropical country, endowed with clear sky and a bright sun for about 9 months in a year, has not made much headway in this direction. In view of this, whatever pioneering efforts are made at the successful use of solar energy deserve encouragement and support. One such effort, has been made by the "Yantra Vidyalaya" of Bardoli. The Vidyalaya, though normally engaged in the development of improved agricultural tools and implements, has successfully developed a solar cooker which is simple enough to operate, even by the illiterate rural people.

The device is so simple, that it can be manufactured and repaired locally with locally available materials. The cooker consists of a tin case, something like a flat, steel trunk with a glass cover. Inside the tin case, there is a small box made of tin. There is some space between the small inner box and the outer tin-case. This is stuffed with non-conducting material like rice-husk and wood-dust, which is easily available in the rural areas.

SIMPLE DEVICE

The case-cover contains two glasses with space between them and are fixed in air tight positions The layer of air formed between the two sheets of glass acts as a non-conductor. The inside of the box is painted with a special black

colour called the "interior boiler black". An elastic rubber tubing is provided on all the four inner sides of the cover to make the inside of the box air-tight The cooker contains four tightly covered metal boxes, to keep the food to be cooked These metal boxes are coloured black from outside, to ensure maximum absorption of heat It is calculated that 95 per cent of the heat of the Sun rays is absorbed by black colour

The working of the device is simple too. The Sun rays after falling on the glass cover, pass through the glass sheets The heat-rays inside the case are prevented from escaping by the non-conducting layer of air formed between the two sheets of glasses, and also by the non-conducting material, rice husk or wood-dust stuffed between the two cases The heat generated inside the case is passed on to metal boxes which contain the food to be cooked This gradual accumulation of heat, is sufficient to cook rice, dal, vegetables, upma, sweet rice, bread, kheer and some other items All that the house wife has to do is to keep these items mixed with spices in the closed boxes with appropriate quantity of water and put them in the solar cooker Once this is done, there is no need to look after it occasionally It will not boil or over-flow nor get charred, because the process of heating is very slow. The food will be cooked and ready for consumption in about three hours.

The only condition for the working of this cooker is that there must be a clear sky with a bright sun. Another limitation of the cooker is that it takes about three to three and a half hours to cook the food However, this limitation has its own uses for the rural folk Knowing that it takes three hours to cook the food they can go for work in the fields or elsewhere with an easy mind

Easy Maintenance

The cooker can be kept in any space open to sky and can be manufactured by local carpenter Once manufactured, it does not require frequent repairs and the repairs if, at all, are also of a very minor nature The present cost of the cooker is about Rs. 300 The Vidyalaya is now working to bring down this cost too. However, according to the calculations made by the Vidyalaya, even the present cost is fully recovered, over a period of two years, by way of saving of the cost of fuel As the cooker does not require any fuel, there is no air pollution, which is normally caused when wood and cow-dung are burnt as fuel in the villages Indirectly the cooker also helps in preventing occurrence of eye diseases such as trachoma, caused by smoke particularly among the rural women □

It seems to me that the worst comment on dictatorships is that presidents of democracies can laugh while dictators always look so serious with a protruding jaw, a determined chin and a pouched lower lip, as if they were doing something terribly important and the world could not be saved except by them

LIN YU TANG

Export Trends During the Plans

—Jawahar Lal

FOREIGN TRADE is a barometer of the growth of a country's economy especially of a developing country like India.

Our exports in 1976-77 stood at 4980 60 crore as compared to Rs. 459 crore in 1948-49, a ten time increase These are considerably diversified ranging from traditional items like jute, tea, coffee, cotton textiles, mica and manganese to non-traditional commodities like machine tools, locomotives, textile machinery, sugar mill machinery, trucks, transmission towers, drugs, pharmaceuticals and various other sophisticated engineering goods.

Surplus Trade Balance

Export promotion as an integral part of economic development started gaining momentum during the Third Plan period. In 1960-61, the exports amounted to Rs. 660 crore while the imports totalled Rs 1,140 crore In 1965-66, the exports rose to Rs 805 crore while imports stood at Rs. 1,409 crore The growing imbalance, however, was due mainly to higher imports for developmental needs.

This situation invited renewed efforts to further improve exports. And happily the trade balance showed a surplus of Rs. 104 and Rs 72 4 crore in 1972-73 and 1976-77 respectively. The following table shows our export performance during each plan period :

TABLE

Exports	(In crore of rupees)
Ist five year plan	3,029
IInd five year plan	3,047
IIIrd five year plan	3,809
Three annual plans	3,645
Fourth five year plan	9,050.88
Fifth five year plan -	
1974-75	3,328.83
1975-76	4,042 81
1976-77	4,980.60

Source:- Various issues of Reserve Bank of India Bulletin Monthly

Export Promotion Councils

Export promotion councils were set up in the Ministry of Commerce

(*Contd on page* 35)

SMALL SCALE UNITS

Employment Potential and Capacity Utilisation

K. K. RUDRA

SMALL industries have a number of plus points from the point of view of location, capital and import needs, employment and income distribution. They are particularly suitable for employment of women, fuller employment of the underemployed and seasonally unemployed, and self-employment of the educated unemployed. In the special employment programmes of the fourth plan, a good deal of emphasis was placed on the promotion of small scale industrial ventures by the educated unemployed

The final version of fifth plan has also noted that appropriate use of fiscal credit and production support policies in this sector is essential for reinforcing its capabilities for further generation of employment. Of the total Fifth Five Year Plan outlay of Rs. 39287.49 crore, Rs 535 crore was earmarked for village and small scale industries (Rs. 178.60 crore for small scale industries alone.

THE 1974 CENSUS

A census of small scale industrial units was conducted in 1974 by the Small Scale Industries Development Commissioner, Ministry of Industry, with the reference year 1972. The report of this census was brought out in January 1977.

The census found that the registers of the Directors of Industries bore the names of 2.58 lakh small scale industrial units out of which only 62 per cent were found to be working. Census data were tabulated for 1.4 lakh, of which 35 per cent came into existence in the first four years of the fourth plan, 61 per cent of units were proprietory units and about 6,000 were reported to be ancillary units. About 70 per cent of the units were using electricity.

Another finding was that with an investment of Rs. 10.55 crore in fixed assets the units provided employment to 16.55 lakh persons. This

TABLE—1

Production and Employment in 1972 in Small Scale Units and Estimated Employment at 80 per cent capacity utilisation

S. No.		*Production in 1972 (in Rupees)*	*Employment in 1972 (in number)*	*Estimated employment at 80 per cent capacity utilisation (in number)*
1	2	3	4	5
1.	Bread etc.	1,44,658 (53)	11,673	16,078
2.	Cashewnut roasting & frying	4,08,425 (60)	71,121	94,823
3.	Ice making and Cold Storage	72,096 (49)	11,399	16,052
4.	Cotton knitted wares	4,95,069 (52)	18,743	25,952
5.	Woollen wares	3,14,117 (77)	13,222	13,737
6.	Readymade garments	2,75,129 (63)	21,959	27,884
7	Sewing and planning of wood	3,65,639 (50)	24,810	34,734
8.	Wooden furniture & fiture	2,09,902 (54)	29,156	39,955
9.	Printing of books and journals	5,12,772 (77)	48,951	50,858
10.	Printing of envelopes and picture post-cards	2,36,008 (74)	17,720	19,156
11.	Vegetable tanning of light leather	2,98,028 (81)	3,127	3,127
12.	Leather shoes	78,285 (57)	10,733	14,499
13	Candles	55,929 (35)	9,523	14,964
14	Paints varnishes and lacquers	2,76,018 (48)	8,267	11,711
15	Allopathic Medicines	3,39,387 (55)	10,299	14,044
16	Washing Soap and Soap powder	6,28,576 (52)	22,205	30,745
17.	Matches	1,16,250 (59)	31,241	41,842
18.	Tiles	14,729 (66)	18,187	22,045
19.	Hume, Pipes, cement slabs	1,83,907 (51)	16,452	22,904
20.	Iron and Steel castings and forgings	21,19,126 (48)	82,088	1,16,291
22.	Steel trunks	1,38,781 (46)	14,989	21,506
22.	Drums and other metal containers	4,99,276 (45)	23,787	24,359
23.	Structural metal products	3,45,279 (52)	25,264	34,981

TABLE 1 (*Contd.*)

1	2	3	4	5
24.	Bolts and nuts	2,00,759 (47)	12 766	18,198
25.	Agricultural handtools and implements	5,15,559 (51)	43,164	60,091
26.	Utensils	9,72,809 (44)	56,471	82,139
27.	Parts and accessories of industrial Machinery	1,89,193 (62)	1,24,132	16,017
28.	Auto Parts and accessories	6,40,657 (55)	37,754	51,483
29.	Bicycle parts and accessories	2,70,203 (59)	17,051	22,831
	All Industries	**2,57,05,724**	**16,53,178**	**22,77,019**

(Figures in bracket indicate the percentage of total capacity utilised).

TABLE-2

No. of small scale industrial units, employment, investment in fixed asstes by broad industry-groups

Industry Group	No. of Units	Employment (in number) Total	Per Unit	Investment in fixed assets (Rs. '000) Total	Per Unit
(1)	(2)	(3)	(4)	(5)	(6)
Food Products	6,577	1,31,220	20	5,71,488	87
Beverages	469	4,577	10	42,783	91
Hosiery and readymade garments	6,718	75,346	11	3,61,094	54
Wood products	12,188	94,703	8	4,23,909	35
Paper products printing etc.	8,332	89,146	11	8,70,360	104
Leather and Leather Products	5,040	31,775	6	1,13,973	23
Rubber and Plastic products	7,688	81,690	11	8,04,701	105
Chemicals	11,837	1,57,013	13	10,09,214	85
Glass and Ceramics	7,799	2,02,269	26	6,28,657	81
Basic Metal industries	5,073	1,09,625	22	8,52,346	168
Metal products	34,011	3,00,060	9	18,76,887	55
Machinery and Parts	12,701	1,45,333	11	12,52,964	99
Electrical and Electronic products	4,409	65,908	15	5,39,773	122
Transport Equipment	6,049	83,492	14	6,49,542	107
Miscellaneous	3,489	40,025	5	2,68,200	39
Repairing, servicing and job work	7,197	38,995	11	2,80,952	77
	1,39,577	16,53,178	12	1,05,46,843	76

Source : Report on the Census of Small Scale Industrial Units, 1977, Ministry of Industry, Government of India.

works out to 13 people employed for every one lakh rupees of such investment. The gross value of output was Rs. 2,603 crore, of which 150.49 crore was accounted for by export, mostly food products, leather and leather products.

The units were grouped into 490 industries, 29 of whom had more than 1000 units each No district in the country had more than 5 per cent of units. Maharashtra, Punjab, Tamil Nadu and Uttar Pradesh had more than 10,000 units each and together accounted for 52 per cent of the number of units and 59 per cent of the output. On an average, at the all India level there were 12 persons working in a unit. About 70 per cent of the units employed less than 10 workers each and 26 per cent between 10 and 49 workers each It is learnt that about 90 per cent of these units really belong to the non-factory sector.

The value added by the small scale units covered by the census was Rs. 841 crore or 32 per cent of the gross value of output. The ratio of self-employed to wage employed is 1 . 7. The wage per worker employed comes to Rs 1400 per annum, while the value added per worker is estimated at Rs. 6,204.

Of the total number of employees, 44 per cent were skilled', 38 per cent were unskilled, and 12 per cent were managerial and supervisory staff. Skilled workers formed 62 per cent of the total employment in cashew-nut roasting and frying, 60 per cent in woollen knitted wares and leather shoes. They were in lowest percentage (33 per cent) in metal industries.

The most notable finding of the survey is that except for vegetable tanning and light leather nowhere was the capacity utilisation higher than 80 per cent and in the case of candles it is as low as 35 per cent. On an average, capacity utilisation was 53 per cent.

Employment in the industrial sector can be increased by increasing the number of production units or by increasing capacity utilisation. The second method is more economical. Excess capacity may have been due to shortage of demand, raw material and power, transport bottleneck or industrial unrest. That is why the Committee on Unemployment in its interim report on short term measures for employment listed the maximum utilisation of installed capacity in industry as an important measure.

Taking a practical overall view and projecting a 20 per cent increase in capacity utilisation, subject to an 80 per cent mean limit of such utilisation, the 1974 census of small units estimates the additional requirements of the units covered by the census at Rs. 261.27 crore for raw material and components The additional requirements of industrial components were put at Rs. 32 5 crore of indigenous equipment and Rs. 4 6 crore of imported origin. With modest additional investment for a 20 per cent increase in capacity use, some 22 77 lakh additional jobs can be created Demand for the products will go with the growth of working population and development of industry and agriculture.

The 1974 census covered only 1 4 lakh units and could not cover nearly 21,000 units which started working between 1972 and 1974 This works to about 10,500 units started every year In fact, the average is nearer 11,500 units a year taking the six year period up to 1974, into account Assuming a constant average of 12 men employed by a unit (on the basis of the 1974 census finding), one may project additional employment of 1 36 lakh people a year at the average rate of new units on the basis of what was noticed between 1968 and 1974 One has to keep in view, however, that the figure is probably a little higher because not all units are registered and accounted for and 22 categories of small industry like handlooms are outside the scope of the small industries development organisation

Skills in these units are mostly acquired while on the job

It is clear that there exist quite impressive prospects for the generation of additional employment in the small scale industries. A quick review of the up-to-date capacity utilisation of small scale units and factors for low utilisation should be made Particular attention may be paid to industries employing more people per one lakh rupees of investment in fixed assets. Fiscal, technical, financial and raw material support should be given to them. Marketing guidance and entrepreneurial training assistance are equally necessary. □

THE BEAS SUTLEJ LINK PROJECT

A Marvel Of Engineering

O P. Datia

THE NORTHERN region has an estimated exploitable potential of 10.73 million KW of power Of this, only 2 19 million KW could be exploited by the end of 4th plan and another 4.42 million KW by the end of the fifth plan The Rs 383 crore Beas-Sutlej Link Project which is one of the largest consortium of tunnelling ven-

Sundernagar Channel

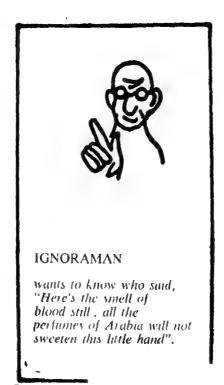
Pandoh Dam and Spillway

tures of complex hydraulic structures in South East Asia envisages diversion of surplus waters of river Beas into river Sutlej, for irrigation and power generation. The Pong Dam as the second limb, which would irrigate 1 60 million hectares of land in Punjab and Rajasthan, is already complete.

A 72.25 m high earth-cum-rock-fill dam across the river Beas at Pandoh, diverts 4716 million cu.m. of waters into 13 11 Km long and 7.62 m dia Pandoh Baggi Tunnel, which merges into Sundernagar Hydel Channel at Baggi. This Channel 11.81 Km long, takes the water further into 8 53 m dia--12.35 Km long Sundernagar Sutlej Tunnel, through a Balancing Reservoir. It terminates into the Surge Shaft and Penstocks of the Dehar Power Plant complex, which is located at Slapper. The diversion system makes use of a 320 m fall available at Dehar on the right bank of the river Sutlej, for generation of power, in addition to augmenting the same at Bhakra through Gobind Sagar reservoir

The Power Plant at Dehar will have an ultimate installed capacity of 990 MW. It will house 4 units each of 165 MW in the first stage and two more units each of similar capacity in the second stage. These are the largest hydro-electric units in the country so far. The six turbines spinning under the kinetic energy of 320 m column of water would provide 267 MW of firm power. Additional firm power through Bhakra Power Plants would be about 148 MW

Power and Irrigation Potential

Of the total power generated Punjab will get 48 per cent, Haryana 32 per cent and Rajasthan 20 per cent

Out of 4716 million cu m of water diverted from river Beas to the river Sutlej in a mean year, 2010 million cu m would be released back to the river Beas for utilisation in Harike Canals. Thus, additional supply of 2706 million cu m would provide assured supplies for perennial irrigation to about half a million hectares of land in Punjab, Haryana and Rajasthan

Socio Economic Benefits

The project has yielded multifarious socio-economic benefits for the people of contiguous areas. Modern townships like Sundernagar, Pandoh and Slapper are now brightly lit up with electricity. Pucca houses have given place to thatched huts, means of communications to the interiors have improved, the valleys will have pisciculture, afforestation and tourist boom and fruit orchards have immediate access to the mandi towns.

The completion of the project will also help to eliminate regional imbalances, mitigate unemployment and poverty and minimise the devastating effects of floods and droughts.

EXPORT TRENDS

(*Contd from page* 31)

and Industry in early 50s to study marketing conditions abroad, enforcement of quality standards for exports, speed investigation and settlement of complaints, organisation of publicity and the like. There are now 17 Export Promotion Councils apart from the Marine Products Export Development Authority. Also set up are four Commodity Boards under the Ministry dealing with the export of tea, coffee, rubber and cardamom. The Federation of Indian Export Organisation stands at the apex to coordinate and supplement the promotional activities of the Export Promotion Councils and Commodity Boards

Quality plays a vital role in enhancing the competitive worthiness of export goods. A statutory body named Export Inspection Council, set up in 1963 carried out pre-shipment inspection of goods which now account for 90 per cent of the export trade. The preshipment inspection of textiles, yarn and textile machinery is the responsibility of the Textile Committee. An organisation known as the Trade Development Authority has been set up to provide a package of specialised services in the field of production of export-oriented goods and their marketing

Yojana Quiz

1. No. of Doordarshan stations in India is ·
   - (a) 7
   - (b) 9
   - (c) 13

2. No. of Television receiving sets as on 31-12-76 was
   - (a) 1,00,000
   - (b) 50,080
   - (c) 1,20,030
   - (d) 4,79,026

3 Where are the following deserts situated
   - (a) Rub'al Khali
   - (b) Takla Makan
   - (c) Kara Kum.

4 Where are the only volcanoes in Indian territories ?

5. What is the largest inland sea ?

6. Howrah bridge on the river Hooghly is the third cantilever bridge in the world Which is the longest cantilever bridge in the world ?

7 How many days the planet Pluto takes to give one revolution around Sun ?

8 The Second National Flag was hoisted by whom, where and in which year ?

9 Where is Ittiadoh project ?

ANSWERS :

1. (c) 13

2. (d) 4,79,026

3. (a) Part of Arabian desert.
   (b) South Sinkiang, China
   (c) South-west Turkistan, USSR.

4. One is the Barren Islands about 140 Km north-east of Port Blair, and the other is the Narcondam Island, about 150 Km north-east of the Barren Islands.

5 Kaspiskoye More (Caspian Sea) USSR-Iran, 760 miles long and total area 143,550 sq miles

6. Quebec (over St. Lawrence River, Canada) 3,239 ft in overall length

7. 90,400 days.

8 The Second Flag was hoisted by Madam Camma and her band of exiled Indian revolutionaries in Paris in 1907

9. On the Garhvi river, a tributary of the Vainganga, in the Vidarbha region of Maharashtra which is meant to irrigate 450,000 acres.

Quotation Box

We have no right at all to attack the self-respect of human beings.

* *

A dirty broom can't clean a room.

—Morarji Desai

* *

Our limited resources cannot be frittered away in meeting the demands of those sections of the population which are better off than the sub-merged mass of people living below the poverty line.

—Jayaprakash Narayan

* *

The success of students in the competitive examination who switch over from science and technology to the humanities only highlights the hollowness of the present evaluation method

—Badr-Ud-Din Tyabji

* *

Congress can emerge from the present crisis only if it works as an institutionalised party and not as the extension of an individual's personality.

Editorial in the Hindustan Times

* *

I am now learning to be tight-lipped. Now its' saying a little that says a lot

—George Fernandes

* *

English has become the "rani" and Tamil has become the "dasi". Other Indian languages have become "dasis" too.

—Raj Narain

* *

India's authoritarians want the lady, but not the son—that, at least, is clear in the murky atmosphere of Delhi.

Romesh Thaper in the Economic and —Political Weekly

Adventure does not mean that you have to risk life every inch of the way.

—Edmund Hillary

BOOKS

How to Plan the Future

The Indian Dimension—Politics of Continental Development *by Romesh Thapar, Vikas Publishing House Pvt. Ltd., Pages 192, Price Rs. 40.*

THE book is an outgrowth of Romesh Thapar's lectures and writings, covering a broad spectrum of subjects, ranging from Gandhi's concept of non-violence to "Contradictions in co-existence". As such, it bears a stamp of originality, intellectual freshness and individuality which should stimulate intelligent discussion. According to the author the seventies will be dominated by the debate around the central issue of how to plan the future He feels that no party can afford to neglect it. No party can any longer run for remedies to economic models which have little relevance to Indian continental realities He wants the mass line to become the motivator of policies and perspectives An experimental application of this approach to a narrow area of development immediately throws up a new frame of operation He asserts · "No longer can we rest content with injecting radicalism into the content of planning without drastically altering the frame of planning" This, according to him, has been our grave error He points out that our democracy is shaping differently from the models in the West with which we have been familiar The author desires our economic system to find its roots in our soil and throw up concepts which make sense in our social setting What is the role of leadership in such a set up? He wants political and economic leadership to combine to attack the problem of poverty and despair

The author's optimism overflows when he says that the more perceptive are at last beginning to realise that only a major overhaul of the framework within which we have been functioning is on the agenda. With the delay in facing this challenge embedded in all notions of economics, politics of the meaning of change is intensifying the crisis which surrounds us. He further observes we need to clean our brains of the cobwebs which prevent us from seeing the qualitatively new elements which are shaping the future He sees a deep reluctance to adjust to the essence of this challenge. Reluctantly or otherwise, we would like our policy-makers to work out a mass line for the upliftment of our people He wants them to find the short cuts to real standards of living which are dignified and wastefree The challenge is wide-ranging, almost forbidding, but it cannot be met by easy slogans of the free enterprise and planned societies.

Talking in the same vein, he argues that social ownership of the means of production has to be steadily extended until the power of private wealth to subvert social and distributive justice is broken He warns that this does not mean total social control immediately. Control certainly of a kind which makes it impossible to subvert policies vital to social and distributive justice He wants wealth in the key sectors to be produced and distributed under social control.

His analytical powers find expression when he refers to egalitarism. He deplores the trend among our planners of glibly indulging in the talk of bridging the many gulfs between our people and of the need to be egalitarian in outlook and policy, but doing everything possible through planning processes, rules and regulations and value systems to increase the gulf. He concludes : "twentyfive years of freedom have not seen any improvement in their economic-social stratification". Indian democracy demands a growth model which ensures substantial changes in the basic living conditions of the mass of our people within their life-time. Is this author's pipe-dream?

The book is an eminently useful contribution to the understanding of modern Indian society. It is dominated by the author's preception, catholicity and vision

Subhash J. Rele

Readings in Professional Management

Professional Management in India—Problems and Prospects (Eds) M. V. Pylee and K. C. Sankaranarayanan; Published by Foundation for Management Education, (University of Cochin) 1976; Pages 466; Price Rs. 75.

THE volume under review consists of thirtynine papers, all published separately in Indian Manager, a quarterly journal on management of the Foundation for Managtment Education of the University of Cochin. The book seems to have been conceived and structured to provide answer to certain basic questions such as what is the extent of professional management at present in India, what are the problems it faces, what factors help or hinder the growth of professional management etc., raised in the minds of young students preparing to enter industry, practising managers and others including teachers interested in the discipline of management. But one, unfortunately, gets not only no clear glimpse of a well-articulated objective-oriented elaboration of the theme, but one even misses an integrated, logically disciplined analysis of the formulation sought to be presented through this volume. Perhaps, it is ingrained in the very nature of such a publication, which consists of a conglomeration of disjointed articles and which, *ipsofacto,* imposes severe constraints on editorial discretion about choice of contributors and subjects quite apart from other psychopersonal bias-blocks. These factors appear to have largely contributed to the inadequacy of this book.

The volume is divided into three parts. Part I deals with Management Development (15 papers), its evolution in India, prerequisites, methods and challenges. Part II deals with Public Sector Management (10 papers) and Part III deals with Personnel Management and Industrial Relations. (14 papers)

Some of the subjects included in this compilation are interesting and some of the authors are quite well known in the management field However, both these factors have not been able to bail this book out of the ordinariness and casualness, despite Editors' well-known interest in the development and promotion of what this reviewer would prefer to call, a 'baby discipline', that management still is in our country. Readers expect much more professional theme-handling and loftier things from K. T. Chandy, Iswar Dayal, J.R.D Tata, P K. Tandon, K S Basu.

BATA K. DEY

Development Notes

Bombay High Oil Production

The Bombay High oilfield has yielded five million barrels of crude oil accounting for a saving of about Rs 50 crore in foreign exchange in a year. Oil began flowing from Bombay High in May last year. The present production rate is about 40,000 barrels a day.

Development of the Bombay High and Bassein oilfield has been divided into three phases. Work on the first two phases has been completed. The ONGC has now taken up phase III, which is divided into parts The total investment on the first two phases is estimated at Rs. 149 89 crore.

PAU Releases New Varieties of Pulses

Two new varieties of pulses namely G 543 of gram and PG 3 of Peas have been released by the State Varietal Release Committee of the Punjab Agricultural University, Ludhiana. G 543 is a variety of *desi* gram and is specially suited to humid, sub-mountainous tract comprising districts of Gurdaspur, Roopnagar, Hoshiarpur and Amritsar.

This is resistant to gram blight, wilt and foot blight and has given an average yield of 14 quintals per hectare as against 11.6 quintals of C 235 on the basis of 16 trials at Research Station, Gurdaspur, representing an increase of 21 per cent

The new variety of field peas, PG 3 is dwarfer and the seeds are bold. After soaking in water the dishes prepared are sweeter and tastier than those prepared from T 163 This variety has given an average grain yield of 21 7 quintals per hectare as against 15.7 quintals per hectare of T 163 on the basis of 19 State level trials at experimental fields held from 1972-73 to 1976-77, an advantage of 38 per cent over T 163.

Central Aid for Export Production Project

The Centre sanctioned Rs 25 lakhs for Assam in 1976-77 for two special projects, one intensive development project to cover 10,000 looms and another export production project to cover 100 looms Of this amount, the first instalment of Rs 15 lakhs (Rs 11 25 lakhs as loan and Rs 3 75 lakhs as grant) had been released to the State government in 1976-77 The export production project is located at Sualkuch

Gujarat Ports Exchange Earnings up

The foreign exchange earnings of 40 minor and intermediate ports in Gujarat went up considerably to Rs. 191.41 crore from Rs. 127 26 crore in the previous year. This was owing to a spectacular rise in exports from these ports which rose by 17 per cent, and were far ahead of imports. The exports traffic rose by 3 18 lakh tonnes to reach an impressive figure of 22.01 lakh tonnes as against 18 33 lakh tonnes in 1975-76.

Land Banks to Simplify Loan Procedure

The banks annual advances which were just about Rs. 2.5 crore in 1951-52 when the first plan was launched, had exceeded the figure of Rs 220 crore in 1976-77 Total advances so far amount to Rs. 1850 crore Out of a lending programme of Rs 1500 crore envisaged for the fifth plan period the banks have already disbursed more than Rs 1000 crore During the current year, the banks would lend Rs 328 crore

Schemes for simplifying the loaning procedures and for disbursing loan amounts to farmers at their door-steps are expected to be implemented during the current year by Land Development Banks functioning in different parts of the country The loaning operations would be diversified to cover purposes subsidiary to agriculture for augmenting the income of the farmers and to create employment potential in rural areas.

Plan to Raise Coffee Production

A Rs 250-crore plan to raise coffee production two-and a half times by 2000 AD has been drawn up by the Coffee Board

Under the plan an additional area of 1 30 lakh hectares is to be brought under coffee cultivation by 1993-94 so that these areas reach the yielding stage by 2000 AD The production from these areas would be 1 15 lakh tonnes This would raise the total coffee production to 2 52 lakh tonnes from about one lakh tonnes at present

To begin with, an additional area of 40,000 hectares is proposed to be brought under coffee cultivation by 1984-85 with a capital outlay of Rs 75 crore The rest of the investment is to be phased out over the remaining period

Tractors Production to be Stepped up

The Bihar State Agro-Industries Corporation has planned to roll out 2,000 HMT Zetor tractors in 1977-78 The production is to be gradually stepped up to 10,000 in five years The corporation took up the assembly of tractors in collaboration with Hindustan Machine Tools in June 1976

Employment Guarantee Scheme

The Maharashtra Government will undertake to provide jobs to every able-bodied person in rural areas. If the government fails to find a job within 15 days of application, it will pay the applicant an unemployment allowance of Re. 1 per day Altogether Rs 25 crore will be required as unemployment allowance. These provisions are incorporated in a Bill on the Employment Guarantee Scheme introduced in the legislature.

Rubber Reclamation Factory for Ratlam

A Rs. 81 lakh medium size rubber reclamation factory sanctioned by the Government of India will be opened in the private sector at Ratlam in Madhya Pradesh.

The industry with a production capacity of 2640 tonnes will manufacture moulding powder out of old rubber pieces. The factory will start production in a year's time and offer employment to over 100 persons

Lenin in His Study

THE LITTLE MAN AT THE KREMLIN

Lenin, who like a good orthodox Marxist denounces all 'Utopians', has succumbed at last to a Utopia, the Utopia of the electricians He is throwing all his weight into a scheme for the development of great power stations in Russia to serve whole provinces with light, with transport and industrial power. Two experimental districts, he said, had already been electrified. Can one imagine a more courageous project in a vast flat land of forests and illiterate peasants, with no water power, with no technical skill available, and with trade and industry at the last gasp ? Projects for such an electrification are in process of development in Holland and they have been discussed in England ; and in those densely-populated and industrially highly-developed centres, one can imagine them as successful, economical, and altogether beneficial. But their application to Russia is an altogether greater strain upon constructive imagination. I cannot see anything of the sort happening in this dark crystal of Russia, but this little man at the Kremlin can ; he sees the decaying railways replaced by a new electric transport, sees new roadways spreading throughout the land, sees a new and happier communist industrialism arising again . .

As I revive my memories and size him up against the other personalities I have known in key positions, I begin to realise what an outstanding and important figure he is in history. I grudge subscribing to the 'great man' conception of human affairs, but if we are going to talk at all of greatness among our species, then I must admit that Lenin at least was a very great man.

The armoured car from which the call of Lenin sounded : 'Long live the socialist revolution '

An end to wars, peace among the nations such is our ideal the greatest possible number of the simplest and most obvious decisions that would certainly lead to peace

LENIN

On Planning

I like the feel of machinery, the look of it, but more and more, I have felt that from the point of view of balanced development, we have to lay greater stress on many small industries in our villages, make them slightly urbanised, lessen the gap between them and the urban areas and increase the facilities available to the people who live there, instead of concentrating on the towns and cities and drawing out people from the villages, thus creating problems in the cities . . .

One of our states which in comparison to others is more prosperous is Punjab where there is hardly any big plant, out there are plenty of small industries. Some states which are full of big plants are low down in the scale of per capita income, in spite of the development of industry, because agriculture is not developing

I am all for industry, I am all for steel plants heavy industries and all that, but I do say agriculture is far more important than industry Because, it is out of the success of agriculture that industry comes. If you fail in agriculture, you have little to stand upon Where do you get the wherewithal to have industry? It is out of the surplus from agricultural production that you build your industries and, therefore, it has become of the utmost importance that agriculture should flourish and should produce the goods and surpluses needed for industrial growth This point is very obvious but yet, somehow or the other, it does not seem to have caught the imagination of everybody

Agriculture is more important than anything else, not excluding big plants, because agricultural production sets the tone to all economic progress People seem to think that an industrial plant solves all the problems of poverty, which it does not. It has a long-term effect on the economy, no doubt However, at the moment, whichever way you start in India, you come back to agriculture. We dare not be slack about it, as we have been, I am afraid, in many places .

I am ashamed to confess that even today, in spite of every effort, there are areas of India where it is difficult to get good water to drink, and people have to go miles and miles to fetch a pot of water. If I may put it so, I should think the very first thing to do in social welfare is to provide water to drink. There must be enough food, clothing, housing, education and health. If we could provide all this to every inhabitant, it does bring a certain basic standard of living to everybody. Having provided that, we can try to raise this

Often our difficulty has been that we take up large schemes and talk rather big, but in implementing them we lag behind. This is not a good thing It is better to take up small schemes and complete them immediately. We want dynamism in our activity, in our implementation, not eloquence in our resolutions and in our discussions .

What is Planning? Planning is the application of your intellect to a logical, reasonable and better way of doing things. It passes my understanding how any person with a grain of intelligence can object to planning, because such an objection amounts to objecting to an intelligent approach to things. Whether it is economics or politics, or anything else, planning is essential . . .

It is easy to talk about planning in limited spheres of activity. Naturally planning for a whole nation involves infinitely greater effort than planning in bits. Planning, in the larger sense, is thus an integrated way of looking at a nation's manifold activities. In view of the fact that we function under a democratic set up which we have deliberately adopted and enshrined in our Constitution and in this Parliament, any planning that we do must naturally be within that set-up. The Planning Commission does not have right to draw up a programme that has no relation to our Constitution . .

Our plan . . must cope with the amalgam and variety we have in India.

This is the first attempt in India to integrate the agricultural, industrial, social, economic and other aspects of the country into a single framework of thinking. It is a very important step and even if the thinking is partly faulty it does not detract from the magnitude of what has been attempted and accomplished. It has made the whole country planning conscious It has made people think of this country as a whole . . .

We do not think that democracy, as is sometimes believed in other countries, means the economic doctrine of *laissez-faire*. That doctrine although some people still talk of it, is almost as dead as the century which produced it—dead even in the countries where people talk about it most . .

And when people say, 'You have been over-ambitious in regard to the Second Five Year Plan', I will reply that we propose to be over-ambitious everytime. It is that outlook that we wish to produce in the country not the outlook of caution and of creeping along slowly For the stakes are high. We dare not go slow—for we may fail completely by going slow

JAWAHARLAL NEHRU

The World View

It would be a tragedy if the two great countries of Asia, India and China, which have been peaceful neighbours for ages past, should develop feelings of hostility against each other We for our part will follow this policy, and we hope that China also will do likewise and nothing will be said or done which endangers the friendly relations of the two countries which are so important from the wider point of view of the peace of Asia and the world . .

We may get excited about the sacredness of the Indian soil and the Chinese people may get excited about something they hold sacred, if they hold anything sacred. But nothing can be a more amazing folly than for two great countries like India and China to get into a major conflict and war for the possession of a few mountain peaks, however beautiful the mountain peaks might be, or some area which is more or less uninhabited . . .

The House knows well enough how recent developments have created a wide gulf in the relations between India and China. We have felt strongly about it, and the House has also felt strongly about it Nevertheless, we have tried to avoid, insofar as we can, taking any steps which may create unbridgeable chasms between the two countries. We have to look at this moment of history, not only to the present but to the future ; and the future of India and China who are neighbours to each other and have vast populations, is of the highest importance to themselves and to the world.

JAWAHARLAL NEHRU

YOJANA

Volume XXI Number 20

16 November, 1977

25 Kartika, 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan but is not restricted to expressing the official point of view.

Chief Editor

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IN THIS ISSUE

Cover design. Jivan Adalja

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Subscription : Annual—Rs 18 Two Years—Rs 30. Three Years—Rs. 42. Foreign Subscription : One Year—£2.70 or $5.50. Two Years—£4.50 or $9.00. Three Years—£6.30 or $12 50. Single copy—Twelve pennies or $0 25.

Khadi must be taken with all its implications. It means a wholesale Swadeshi mentality, a determination to find all the necessaries of life in India. . . . It vitally touches the life of every single Indian ; makes him feel aglow with the possession of a power that has lain hidden within himself and makes him proud of his identity with every drop of the ocean of Indian humanity, of its economic freedom and equality and, therefore, ultimately, in the poetic expression of Jawaharlal Nehru, 'the livery of India's freedom'.

Mahatma Gandhi

Rehabilitating Nehru

FROM EARLY in his long political career, Jawaharlal Nehru was troubled by a nagging feeling that popular adulation may turn him into a spoilt child—which is another word for the despot. Thus did he write the famous letter denouncing himself.

Even at the height of the Gandhi era, when the half-naked fakir dominated the political scene, Nehru was the darling of the masses. His antagonists saw in him many timidities and hypocrisies, all of which made no difference to his growing popularity. His individual personality was not dwarfed by the presence of the Mahatma ; rather it drew sustenance from that august presence.

It is only natural that a person who occupied the centre of India's political stage for several decades should have been subjected to pitiless criticism both in his life time and after. The recent events in India have given these criticisms a sharper edge Not the least severe of the criticisms is that he was a creature of history, not its maker, that he was at best a well-intentioned liberal and at worst a romanticist ; that, if he knew little economics, he knew politics even less ; that he lived from compromise to compromise and finally from surrender to surrender. This criticism, muted in his early days of office, became more vocal after the mid-term appraisal of the plan till it rose in a crescendo at the time of the Chinese incident.

There was much malice in this criticism, which ignores the outstanding fact of recent Indian history, namely, that of all the great men whom the Gandhi era produced, he was the one chosen by the messiah to be the torch-bearer after his departure. "He will speak my language after I am gone".

Nehru did not exactly conceal his differences with his chosen leader. He found Gandhi intriguing and his ideas anachronistic. With a great vision of a modern, industrialised, liberal democracy—a product of the fusion of Locke, Montesquieu, St. Thomas Aquinas, Laski and Oxbridge—he could not accept the "naivette" of the village logic fervently pleaded for by the wandering friar. And Gandhi knew where exactly the preferences of his political heir lay.

Yet why did this "strange little man" want his mantle to pass on to this "reprobate" ? Herein, perhaps, is to be found the clue to Nehru's place in Indian history ; and that history cannot easily be wished away.

NEHRU SHARED with Gandhi the one quality which makes for universal acceptance in a country of diverse cultural backgrounds marked by extreme passions of one kind or the other—social, religious, linguistic and, of course, ideological. That quality was tolerance, gentleness, understanding, compromise, humility and, more than anything else, an abiding faith in the common people.

If Gandhi knew the virtue of firmness, he knew the greater vice of self-righteous zeal. "One step enough for me" epitomised his infinite patience. And in Nehru he saw the one man with a great missionary zeal tempered by respect for the opposite opinion even if that opinion was held dishonestly. Nehru was not explicit in subscribing to Gandhi's "ends and means" philosophy ; but complete acceptance of that philosophy was implicit in the manner of his evolution.

Others, with far less direct responsibility for the affairs of this vast and varied country, have dissected him into bits, but they perhaps have not been able to appreciate the value of his loyalty to the organisation, his innate discipline for the cause and his ability to keep together men of varied temperaments, beliefs, prejudices and purposes.

Others might have launched this country on the course of majority despotism and hastened its disintegration; they might have imposed their will and quickened the process of sullenness, they could have installed their state satraps and made India's democracy a grand imperial design; they could have relied on a narrow base of urban and rural oligarchy and robbed India of a distinctiveness in a "patterned" world; they could have plunged the country into an orgy of Gandhian solutions, without the country being prepared for it—a circumstance which Gandhi himself would not have bargained for, or they could have launched on a frenzy of industrialisation which would have led to a great serfdom of the country and its people.

THE GREATNESS of Nehru lay in his conscious acceptance of the limits of any single course of policy Hindi was the language of the struggle, even as Khadi was its livery, but neither could be imposed Socialism was a creed of urban liberalism but its passionate pursuit would have been at the cost of some basic values of Indian polity; "bossism" in the states might have been deplorable, but its abolition by a central edict would have led to the super boss, in the mean time, the great power of the central government in the constitutional scheme could be tempered by a conscious encouragement of powerful state bosses who could exert influence in what was inevitably a single party polity The oligarchies could not be wished away nor could the oligarchs be liquidated, hence the strategy of universal adult suffrage, the experiment of panchayati raj and gradualism in land reforms after the early speed in zamindari abolition.

Hiren Mukherjee called him the gentle colossus, the accent being on the word "gentle". It is this gentleness (not gentlemanliness) which marked him out as the unquestioned successor to the Mahatma

THE AUTHENTICITY of a conviction reveals itself only in a crisis He could have saved Krishna Menon, if he wished; he could have dissolved Parliament; in fact a non-official resolution pleaded for its suspension during the Chinese conflict His presence in the Lok Sabha during the thinly-attended debate on this resolution surprised many. The significance became clear when he rose to state his position Only in war, in times of national crisis, he said, should government function in the full gaze of the public, should Parliament be in continuous session In fact he extended the session There was an emergency which he scarcely used; there was the DIR which did not strike terror in his political opponents Newspapers could still write (maliciously at times, under foreign influence often) about the unshod soldiers, unequipped battalions, irresponsible generals, an incompetent prime minister and the "wailing woman' who lamented the fate of her progeny thrown to the Chinese "wolves" Nehru would not curb these criticisms; rather he would answer them patiently in the House, at news conferences and at public meetings.

All this does not mean that his record is not open to ruthless scrutiny. If he accepted "Siksha" and the giant American transport planes, he quickly recovered his stance; if he spoke in tones of panic about the threat to Assam, he did not run away from the consequence of political ignominy. He rejected Frank Antony's advice that Jawaharlal Nehru be brutalised, that the people of India be brutalised.

HIS ESSAYS in planning were not always rewarding. His industrial policy not only led to monopoly but to what Rajaji picturesquely called "permit licence raj". His panchayati raj became the paradise of the rural oligarchies. His elections gave rise to the ascendancy of money power; his constitution permitted the cavalier dismissal of state governments and dissolution of state assemblies; his own party became increasingly a flabby instrument fit neither for ethics nor for governance His foreign policy did not win him many friends His economic policy led to dependence and foreign domination of our internal affairs

And, amidst the wreck of his visions and dreams, stood the man himself, sad, disillusioned, bewildered, almost lonely There was no Gandhi to guide him, no Patel to lend him confidence, no Azad to counsel him, no Pant or Kidwai to ward off the cowardly attacks on a good man wronged "One by one, the captains depart", Nehru said in anguish when Sarojini Naidu passed away

Yet in this hour of his defeat, he displayed a quality which few in his position would have shown—the quality of complete commitment to the democratic process, even if it led to his personal embarrassment And it is the very state bosses whom his daughter was later to denounce, who, despite their lack of stature of the earlier titans, understood the supreme significance of the phenomenon called Nehru.

IF THERE were two periods of his prime ministership which brought out the essence of his personality, they were between 1947 and 1957 and again between 1962 and 1964 when he left us, almost the last of the great figures of the Gandhi era. Faced with partition, the exodus, the Kashmir war, the states problem, the rapid degeneration of the ethical character of congressmen, he still perserved with the Constituent Assembly, moved the "objectives resolution" (however valid the Royist criticism of this resolution might have been), decided to continue the association with the Commonwealth (here was the man, said Churchill, who had conquered hate), at one stroke made franchise universal, held an election, launched the plan introduced community development and panchayati raj, gave content to the politics of reconciliation, set his face against communal frenzy even after the martyrdom of the Mahatma, set the country on the road to industrialisation, curbed the linguistic fanaticism of the Hindi lobby while conceding the aspirations for linguistic states (only short-sighted men called this a tribal idea) and made the Congress accept socialism as the goal of its endeavour. And all this in the setting of a parliamentary democracy, judicial independence, unbridled freedom of the press and openness of society Patel had died in the meantime. More could not be said of any man in history. Alone, amidst a motley crowd of supporters and calumniators, in the gravest of perils any nation was ever called upon to face, he steered the ship of state on the safe course of development, democracy and decency.

And in 1962, even in April, when the election was over, he was unwell—so unwell that he could not attend the meeting of his party for the election of the leader. Then came the succession of attacks on his policy, the Chinese war, the growing foreign intervention, the entry into the Lok Sabha of Dr Ram

anohar Lohia, the relentless critic of the man and s politics, and the serious illness in Bhubaneshwar.

HOW MANY can recall the epic nature of his struggle against circumstance and physical fliction? His defence of the CPI resolution on the iinese question (the party had not split then) and e Chinese embassy's propaganda on our soil, his tervention to thwart the "operation scuttle" of his vn partymen on the company law amendment, his itient reply to Dr Lohia's scathing indictment of s economic policy, his readiness for a debate on the ree anna fifteen anna controversy raised by the Docr, his perseverance with the constitutional amendment protect the land laws, his speeches in the Lok Sabha eading for a long term approach of friendship with ir neighbours despite their hostility, his two speeches the Bombay AICC on Pakistan and China only a w days before his death an his last press conference hen, already broken in body, he said, "I am not ing yet" (this was only four or five days before the id came)—this was a fitting finale of a grand career, o ineffable to describe Was it a coincidence that died on the day of the opening of a special session Parliament to pass the constitutional amendment protect the land laws of the states? Or was it a preme act of sacrifice in the cause of the spossessed?

THE MOST uncharitable of his critics cannot deny that he sought to rescue our freedom movement om narrow and exclusive nationalism and salvage e one-world idea from vague sentimentalism He id little use for international cooperation as a mere cal. The objective had to be defined and the diffiilties understood He regarded the struggles and ontradictions of the day as very real, and his oneorld idea would not obliterate them altogether eace did not appear to him inconsistent with the onflicting social movements Freedom and non-exoitation were the essential premise for world ooperation If India were to surrender a part of her sovereignty to a world system, she had to be sovereign in the first instance. Thus, for him, the first thing was to establish a world of freedom, non-exploitation and non-interference. From independence to inter-dependence; from non-exploitation to cooperation; from non-interference to mutuality; and, in the meantime, peace based on justice.

The impact of Jawaharlal Nehru's ideas on the politics of his day was distinctive and decisive in many ways. Let us not seek to rewrite history and distort it. For all his follies, he was the one man who has made it possible for us to analyse his failures and build on his successes. Jawaharlal Nehru lends himself to the fiercest criticism, that is at once a measure of his legacy.

If we can think of Gandhian solutions, if we can think of greater federalism, if we can talk of a sensible policy for minorities—linguistic, religious or other—if we can talk of participatory democracy, it is because Jawaharlal Nehru greatly expanded the base of discussion Along with his seeming "misdeed" of pampering the urban consumer intelligentsia, lost to intellectual and moral courage, should be seen his contribution to the efflorescence of mass politics which will prevail and did prevail against the parasites of the towns.

And let not the Congress party or any of its leaders consider Jawaharlal Nehru to be their inheritance At least that section of the party which was responsible for or acquiesced in or even now defend the infamy of the emergency can have no claim to that priceless treasure of Indian politics

For the rest, this "jewel among men" is India's common inheritance even as the Indian National Congress which fought for our freedom is.

NEHRU AND GANDHI have become part of history, the legend and story and song and myth of our great heritage Our task now is to build an India where their values can be blended with the nobility of their life and work

First Signs of Policy

NEWSPAPER REPORTS that the planning commission may not encourage labour-saving farm achinery, coupled with the view attributed to rof. Raj Krishna that non-tractorised lands have been ound to yield more, indicate a refreshing approach to olicy. Labour shortages can be made up by migration rof. Raj Krishna appears to have committed the lanning commission to a firm policy against mechaniation.

Simultaneously the planning commission may be exected to assess the impact of this new approach on opulation policy. A view has been held that middle id small farmers do need more sons for farming as ell as for supplemental income through migration on-mechanisation should be accompanied by more igorous schemes of labour cooperatives or labour anks with guaranteed wages

Prof. Raj Krishna's clear reiteration of the new govrnment's resolve to start more and more public sector nderstandings in the core sector should silence critics. aturally, where jobs can be created otherwise and etter, a different policy will be pursued.

The professor has said that new technology based n use of labour is being developed; investment would be concentrated on industries based on forestry, poultry and dairying, area planning is being evolved; 500 development blocks would be taken up in the next two years and 2,000 more blocks in the succeeding five years under area planning for full employment This would account for almost half the country.

Prof Raj Krishna has also spoken of encouraging planning at the lowest level and involving voluntary agencies and educational institutions

He has made it clear that the size of the plan for the coming five years will be substantially bigger than that of the fifth plan He said that the planning commission had never before been more associated with policy-making than at present He referred particularly to the association of the deputy chairman of the commission with all important discussions of the cabinet. Without minimising the stress in the past on growth and self-reliance, he drew attention to the fact that not much headway had been made even here. The time has come for attention to employment, distributive justice, irrigation and labour intensive industries The proportion of the public sector would be maintained, even increased But the scope for massive employment has to be found not in the organised sector but in the un-

organised sector.

The point made by Prof. Raj Krishna, which will not go unnoticed, is that a certain economic analysis—of a type never before undertaken in this country since the advent of independence—is now going on.

Shri V. G. Rajadhyaksha, another member of the planning commission has chosen the correct expression—economic stupidity of the highest order—to describe the policy of exporting resources and importing inflation. Such a policy reflects "inability to generate indigenous demand". He has said that the greatest emphasis in the next few years would be on power generation and irrigation. In a speech in New Delhi he stressed the human aspect of construction activity, including the problems of those uprooted from their normal vocations and deployed for construction jobs.

All this, together with concrete steps for constitutional restoration, adds up to a coherent and workable policy as a corollary to the speedy, efficient and honest dismantling of the apparatus of cultural tyranny Prof. Raj Krishna and Shri Rajadhyaksha must induce the government to accept the imperative of a commensurate organisation and administration which will be able to implement this policy This is the area where previous policies failed.

And how are they going to control the bureaucrats who spurn small fertiliser plants, use of wastes and local initiative, and have a passion for the con trick of collaboration?

Sardar Patel and the Civil Service

TWO YEARS have passed by since the nation observed the centenary of Sardar Patel's birth. The big change in the political scene is bound to result in a revival of the controversy regarding the relative roles of Sardar Patel and Shri Nehru. The truth, however, would seem to be that in the initial years of our independence, we were fortunate that these two great national leaders were able to work together despite fundamental differences.

A discussion of Sardar Patel inevitably leads to his great administrative and political skill mixed with firmness in resolving for all time the problem of princely states. What is perhaps less discussed is his view on having some civil services as successor to the Indian Police and the Indian Civil Service.

It was Sardar Patel who strongly felt the need of some all-India services both as pace-setter cadres and as factors for national unity and integration. In the circumstances of his day, when suspicion of the ICS was great among Congressmen, there was some doubt about the wisdom of continuing what was then regarded as a colonial tradition. Shri Nehru himself had some reservations. However, the efficient manner in which the civil and military bureaucracy helped the political leadership sort out the numerous problems caused by partition and the princely states and the anxiety for preserving the nation's stability probably settled the issue at that time. As Home Minister, Sardar Patel had a decisive say in the matter.

Shri Jaya Prakash Narayan had always been opposed to the concept of an elite service with special built-in privileges. He called the top bureaucracy the most powerful trade union in the country. It is not surprising, therefore, that, in his message for this year's celebration of Sardar Patel's brithday, he has referred to this matter. He has said that, in offering certain concessions to ICS personnel, Sardar Patel did not take enough precautions to ensure that the newly constituted all-India service was not infected with the ills of the ICS. JP, however, has expressed the view that if the Sardar had lived longer, he would have moulded the central and state administrations in a fashion that things would not have come to "such a sorry pass".

What is this sorry pass ? In recent years there has been a controversy about the jurisdictional confusion between the political and administrative wings of government. The problem has been discussed in the UK also. Significantly, the criticism in the UK is about the Treasury's hold on the government. In both countries, the charge has been often made that the political will of the people is frustrated by the power of the bureaucracy.

It is significant that the kind of administrative system we have in this country does not obtain in many other countries. To facilitate the work of the Fulton Commission in the UK, the Association of Professional Civil Servants in that country brought out a study of the administrative system in six countries to drive home the point that the British system is not a necessary one

Strangely, the Fulton Commission's report was implemented in the UK and the Administrative Reforms Commission submitted its report in India almost in the same period. Equally strangely, till then the Home Civil Service in the UK was based on the Northcotte-Trevelyan report and the colonial civil service in India was based on the Macaulay report both of which were submitted in the fifties of the last century.

While some drastic changes have been attempted in the UK in the light of the developmental and political compulsions of the day, nothing of the kind has happened yet in India, despite the ARC reports The discussion has been greatly confused by the controversy between the "specialists" and the "generalists" so-called

The issue is, obviously, not one between functionaries. The real question is whether the administrative scheme, as so far practised, is still valid, particularly after the experience of the emergency A new value system cannot flourish with an out-moded administrative system.

Administration, in the context in which we live is a pivotal factor of society and a great change in its forms and styles will have a profound social consequence. It is in this light—not in the light of the sectarian demands of the functionaries—that a basic renovation of the administrative system has to be discussed.

Since the planning commission is engaged in an exercise for a somewhat radically new approach to development, it cannot ignore the organisational forms for giving the new approach a reasonable chance of success.

Food Production Increase : Plea Reinforced

DR. M. S. SWAMINATHAN'S statement that the present food surpluses conceal the low consumption levels in several areas reinforces the plea for a massive programme to increase agricultural output. Some critics had held the view that there was no need for anything more than marginal increases. Dr. Swaminathan said agriculture should not be regarded merely from the point of view of producing more food; it is an integrated enterprise to create more jobs in the

ıral sector and generate more rural income. Pro-
rammes aimed at full employment and increasing the
ırchasing power of the rural poor would lead to a
rowing demand for foodgrains. And since land is
limiting factor (there is always the reality of some
ırm land being converted for other economic uses)
roductivity will have to improve very fast. The re-
ırn on the investment in farm research has always
een satisfactory; and a fresh encouragement of basic
search in this field is necessary.

Rural Jobs

IDEAS HAVE been pouring in about how jobs may be found for the rural unemployed, ever nce the new government announced its policy goals. he Civilian Conservation Corps (CCC) of America as been cited as an example in a newspaper letter. his was created in 1933 by Roosevelt who "concei-ed of a dual reclamation scheme on a gargantuan ale—reclamation of wasting natural resources and ilisation of unemployed youth". It appears Roose-elt set up camps all over the country each of 200 ıen. Within years some three million men were ained. Besides improving land, the scheme stimu-ted local industry and business.

Schumacher's recommendation of the Buddha's ee-planting injunction to his followers had already een tried by the CCC with great success. Our rail-ays can do far worse than involving their men in this ee-planting and tending enterprise along the course f the railway lines. Erosion control, rehabilitation drainage ditches, conversion of low lying areas in illages into ponds with polythene lining—these can e tried to create assets and jobs

The reported emphasis of the planning commis-on on irrigation and water-management is to be elcomed in this context Extensive road building, ıral housing, rural sanitation must be taken up at ghtning speed. Gradualism will not help.

Then, of course, the village schools. The debate n deschooling can go on. But the school has a lace in a scheme both of employment and of bridging ıe culture gap between the villages and the towns raining can wait. Curricula can be developed in ue time. But schools, with a meals programme, nploying local matriculates at a modest wage must ome up here and now in tens of thousands

The ideas of a large number of patriotic men, reflected in articles and letters to newspapers, should not be laughed away by experts. Let us have courage to make mistakes and humility to accept others' wisdom.

Much of India's drudgery needs no great investment to overcome. It is not always a question of resources; it is often a question of attitudes.

Skyjacking

THE EUPHORIA over the success of the West German Commandos may not last, though the universal condemnation of terrorist tactics is a happy circumstance. Neither will, however, ensure that terrorism will end.

Often the terrorists are no more than adventurers. But quite sometimes they are men with a missionary zeal prepared to lay down their lives for a cause, good or otherwise.

The problem of modern government is that it is damn too efficient and powerful. Classical revolutions are difficult in this age of enormous governmental resources including electronic devices. Naturally, guerilla tactics and terrorism, pure and simple, are the only outlets of revolt against tyranny, supposed or real.

There are two courses only which can greatly minimise this kind of protest. The first is a great simplification and openness of government. The second is the preaching of Gandhi's ideas the world over. Even the most despotic force is powerless against an individual who defies the state and accepts the consequence of defiance. Instead of inflicting suffering on others, the rebel is prepared to suffer himself. This gives him both the opportunity of protest and the great advantage of generating a good measure of public support to his cause.

With all the frightening pace of science, technology, industry and state organisation, the futurologists may be reckoning without the human being in their Orwellian predictions. The Cassandras may have a surprise in store. Man refuses to be defeated; he has not been defeated yet. And, who knows the seeming incoherence of events has a pattern; and the world may be on the brink of a collapse of the state as well as industrial and technological organisation, just when it looks like consolidating its hold on the people.

Wages and Incomes : A Plea for Sense

KAUSHIK

PROFESSOR A. K. DAS GUPTA and Professor Nihar Ranjan Ray, members of the third pay ommission, in their minute of dissent—a model of ood English, terse writing, logic, realism and ima-ination—said, "We attach importance to the pay tructure not merely as provision for the needs of mployees or as stimulus to efficiency, but also as an ıstrument of social change. . . . In a free market, elative wages are supposed to reflect a system of ıdividual preferences. In a controlled economy, elative wages may be made to register a pre-deter-ıind system of social preferences. A pay commis-ion whose terms of reference are limited to govern-ıent employees alone is, no doubt.. an inadequate ıstrument of social change; we would need an over-ll wages and incomes commission. Yet we feel that he government, being the largest single employer of labour, might operate as a price-leader rather than a price-taker and check the wayward movements that are taking place in the rest of the organised market. We take the view that the system of social preferences to which the pay structure is to be related is already implicit in the policy of planned economic development".

Flowing from this premise are their clear guidelines for wage policy. They said, "In our scheme of social valuation workshop categories rank higher than the corresponding clerical staff. . . . Our concern for the skilled worker transcends the immediate problem of wages. We see in the improvement of the status of the workshop staff the possibility of a change in our social order and, in particular, in our pattern of education. We view with alarm the present craze for gradation and the growing congestion in our univer-

sities. We are anxious to see that our boys consider it worthwhile moving away from universities over to workshop training centres and polytechnics, of which there should be many more in our country than we have today."

THE SECOND guideline formulated by the professors was that the differential in the pay structure between the maximum and the minimum must be related not merely to two points but to two ranges. "We would fix our eyes on the contrast between the highest and the lowest pay scales". Thirdly, to quote their words, "We abhor discrimination in any form, except insofar as it is used as an egalitarian policy. There are privileges that certain departments or certain classes of employees (doctors, for example) enjoy under the government. We are in principle opposed to these privileges, even though they appear to be sanctified by tradition". Fourthly, they said, "We cannot persuade ourselves that on this matter of wage fixation, a policy of slow gradualism would be of much avail. If a change in the wage structure is to have an impact upon society, it has to be a visible change".

Referring to the severe constraints within which the third pay commission had to work, the professors gave primacy to the "pull from the unemployed and underemployed". They said, "The concept of a minimum wage cannot be abstracted from the general economic condition of the country....which presents a paradoxical spectacle of an economy in which the minimum wage, even as it is, in the organised sector, is higher than the average earning of the labouring population taken as a whole. The organised sector is able to sustain itself only at the expense of the unorganised sector...... While the economy is characterised in general by poverty and unemployment, there exist in its midst sectors which are maintaining an artificially high level of prosperity. The organised private sector enjoys a sheltered market, with customers, including its own top employees, having enough finance with which to feed it in a sumptuous manner. Monopoly and large distributional inequalities are the props on which this sector subsists, and it offers its managerial staff a pay which is unconscionably high... And there are public sector corporations whose activities are similar in character to those of private firms and where also an artificially high wage structure has evolved over the years. . . . That as high a pay as Rs. 10,000 per month (or more) should be allowed to persist in a developing economy like ours is an enigma to us. As we view the matter, it is because such high pay is maintained at the top, that the base has to be jacked up, if only as a concession to populist demand".

The professors also referred to the paradox of "transfers of our trained personnel, especially scientists and technologists to foreign countries" and simultaneous considerable unemployment among such personnel within our own country.

TAKING THE various factors into account, the professors said, "If, indeed, it were a wages and incomes commission and not one confined to the government sector, we would have urged it to suggest a general scaling down of top salaries when, as it happens, we find ourselves unable, in view of the severe economic constraints, to recommend any appreciable improvement in the pay scales of the bottom layer. The present ratio between maximum and minimum is, in our view, intolerably high, and the pace of bringing it down would be quicker if an attack on both fronts were feasible". The constraint was "the insufficiently regulated private sector . . . where fancy salaries obtain".

The professors endorsed the Administrative Reforms Commission's proposal that "preference for the generalists should give place to a preference for those who have acquired competence in a particular field". The professors objected to a long senior scale and the system of special pay.

The professors further pointed out, "You cannot have an egalitarian pay structure, much as you would like to, so long as the administrative structure continues to be hierarchical in character". Finally they said, "A sound pay system is a *necessary* condition of an efficient social structure but *not a sufficient* condition ; the *will to serve* is the other condition."

THE REPORT of these two eminent professors can (and should) be the take off point for the Boothalingam study group which has been asked to recommend linkages between wages, incomes and prices. The previous regime, which gradually reduced polity economy and administration to an exercise of the *danda,* treated the professors' document with a cynicism which marked the regime's growing unconcern for social values Speaking more in sorrow than in anger, Prof. Das Gupta said in July 1974, over a year after the pay commission had submitted their report "In spite of all the talk we hear about proposals for a national wage policy, my experience leaves me sceptical . . . We thought that the validity of our proposals was beyond dispute ; if a referendum were taken on the issue, I am sure our proposal would receive overwhelming approval And yet our government did not give our voice as much as a hearing I am still sanguine that even though conventional wisdom might shelve these proposals for a time, economic compulsions will bring them to the fore sooner or later Wage policy is an aspect of social relations Conflict is inherent in the situation. And yet, given the will, it should not be beyond human ingenuity to find a way ; knowledge is a solvent of social conflict. Alas the case is different where vested interests are allowed to prevail."

These vested interests have prevailed so far. The task before the Boothalingam committee is not one of "knowing" ; it is one of telling the government how the vested interests may be overcome.

OR IS it ? There is much sense in the criticism that Shri H. M. Patel, in deciding on a study group, is trying to evade the issue. A group can function within a framework of policy Expertise follows does not precede, policy directives, at least in this sector.

Many policy pronouncements of the new government, including those relating to the rural poor, clearly call for a low wage policy which clearly pre-supposes immediate action to curb high incomes in the public and private sectors. These decisions need not wait for any recommendations of any committee. A three stage policy can immediately be implemented, namely, a limit of Rs. 5,000 on emoluments (including all concessions) in the private sector to be brought down to Rs. 2,500 in five years ; a limit of Rs. 3,000 on similar emoluments in the public sector to be brought down to Rs. 2,500 in five years and a policy of administrative reform which will do away with hierarchies, "non-functions" "anti-functions", "super functions", "over functions" and "extra functions", simplify

policy advice and implementation, do away with the clerical class up to the level of secretaries and introduce a new culture of "doing", "building" and "producing".

As a first step government should immediately abolish all special pays, headquarters, deputation and non-practising allowances, selection grades and concordance tables ; make it clear that career management and promotion policies are inconsistent with a general policy of finding resources to provide worthwhile jobs for the unemployed and under-employed. Such a uniform policy for the generality of the organised sector would require political courage and without political courage, "expertise" can do little. Simultaneously, there must be a proclaimed policy of ceiling on profits and dividends and of mopping up surpluses for further investment in worthwhile projects. A firm "No" to bonus demands, to overtime allowances, to increased dearness allowances and to subsidies (except for the economically poorest sectors of society) requires not expert study but political decision. The organised sector, already better off compard to the generality of the people, must be asked to accept sacrifices.

THE DIFFICULTY so far has been two-fold. One, ministers and senior officials living in luxury did not carry conviction when they called for an ordinance of self-denial; two, the wages, as a proportion of productivity and production, have been going down without any simultaneous evidence of the resources generated by such productivity and production going into new productive ventures giving rise to more jobs and better distributive justice.

The new government, with its proclaimed commitment to Gandhi, must set the tone of a new wages, incomes, profits and dividends policy. This need not wait for the report of the study group.

Also, the new job opportunities—be it in health, education, information, engineering, or in any other area of public administration—should be outside the scope of present headquarter organisations so that a greatly decentralised, anti-hierarchical, easy-to-account, target-oriented system can emerge. All new governmental enterprises of a social, cultural or economic nature should be organised on the basis of local corporations functioning within a framework of policy and target, with job continuance being linked to performance. This will keep the new work force outside the competitive field of high wages , further this will put an end to any increase in clerical posts of secretaries, additional secretaries, joint secretaries, deputy secretaries, under secretaries and below. The present headquarter organisations and the staff should be allowed to wither away.

These decisions should be taken here and now There must be a policy announcement that, from now on, there will be no new secretariat posts ; even the present posts must be quickly abolished with the incumbents encouraged to go to the field. The minister's policy advising body should consist of not more than ten officers—drawn from the government or from outside—of equal but modest monthly salary, not exceeding Rs. 2,000. Policy should not be confused with execution which is a field function subject to evaluation by a small body of officers functioning in each Ministry.

These policy decisions must be based on the proclaimed philosophy of the new government in favour of field orientation away from urban pressure groups.

WAGES, INCOMES and prices are essentially a matter of political policy. Once this policy is determined, details can be worked out by experts. The reason for the failure of earlier efforts including the work of the Chakravarthi Committee is that the committee did not have a policy within which to frame its recommendations. The same mistake has been committed again.

Planning is likely to fail again if it does not flow from a coherent political philosophy and from the authority of cabinet policy. There are indications of policy in the terms of reference of the study group on wages and incomes They refer to low incomes in the rural sector and the need for investments in the rural infrastructure But this is not enough. There should be some prior decisions based on this policy.

The study group has been given six months to report. This means its recommendations may not have any impact on the coming budget, hardly three months away. In the mean time, government policies will be under constant sectional pressures. Therefore, there is urgent need of some big policy decisions here and now.

Any appeal to the patriotism or social responsibility of the organised sector will work only if the real wages of the lowest sections of employees are protected by a firm policy of dealing with rural and urban, agricultural and commercial oligarchies and with the high income groups and resist sectional demands. At the same time, schemes for massive employment of the rural unemployed, partly through "food for work programme" should be undertaken.

As Prof Das Gupta said, wage policy is an aspect of social relations. It does not stand apart. Equally, it must flow from a political philosophy. Gandhi preached austerity as a principle. Luxury consumption, for him, was an act of exploitation. Even if the present government did not wholly accept this view, austerity today is an economic compulsion.

As Prof. Das Gupta underlined further, "In adopting a national wage policy, you cannot lose sight of the artificial stimulus that high wages provide to our industry for the use of techniques which are economically inappropriate, considering how conspicuously our economy suffers from a shortage of capital".

LOOKED AT from any point of view the economy needs a policy of low wages. "Extravagant consumption is often equated with economic progress and inequalities of income which permit the existence of riches in the midst of poverty are often accepted as a necessary factor of growth. All this is a misconception. Luxury consumption is the result of economic progress, not its cause, and the rich contribute to economic growth not as a consumer but as a saver" The Boothalingam study group may well keep in mind this cardinal truth uttered by Professor Das Gupta who quoted Keynes, "Like bees, they (the early capitalists of the west) saved".

In India, to get a job is itself a boon. Trade union demand is in conflict with this stark reality. Wage policy cannot be reduced to a mere question of industrial relations, though these are important. The private sector's concessions to labour are compensated by "protectionist" policies and the pampering of an elite class which provides the private sector with a secure market. "A distorted production structure", said Prof. Das Gupta, "is matched by an equally distorted earnings structure".

Wage policy cannot be influenced by a sole concern with wage-profit relationships. Profits should be mopped up for investment. They should not be distributed as dividends or wages beyond a reasonable limit.

After all, wage demand is relative. If there is a general proof of austerity and stern dealing with ostentation from the President, ministers, senior officials, down to the clerks, from the landlords, businessmen, industrialists, shareholders, executives dow to the workers, the problem, formidable as it may appear at first blush, will be found to be reall simple.

ALL THIS implies sincerity in commitment to th Gandhian philosophy. This implies determination and courage. This is a function of politica leadership, not the task of the Boothalingam committee.

Wanted: A Second Republic

KRISHNA CHANDRA

"THE POLITICAL sovereign having reposed its trust in the legal sovereign, the doings of the constituent assembly have an aura of sanctity that legal ingenuity may be powerless to penetrate. But that is an unintormed approach to a filed strewn with various shades of legal landmarks."

These words of Mr. Justice Chandrachud in the election appeal concerning the former prime minister were uttered in the context of the emergency when the argument went along a certain course leading to constitutional despotism. The logic, more or less, was that the people were sovereign; which sovereignty was willingly surrendered to parliament; parliament, in its sovereign power, delegated this sovereignty to the executive; from this it was only a step to acceptance of the prime minister as the symbol of people's sovereignty; thus her consultation with, delegation to or complete dependence upon a "coterie" was itself not only constitutional but an expression of people's sovereignty.

All this is not in the realm of fevered imagination. This was and is the reality. And this must be traced as much to the nobility of founding fathers, whose nature did not permit of an exercise in a fantasy of demented megalomania, as to the extreme vagueness of the basic law of the land.

Mr. Justice Chandrachud said, "The Indian constitution is not like the American constitution, an instrument of few words. The range of topics it covers would bemuse any student of foreign constitutions which do not even skirt the problems with which our constitution deals in copious details. . .Those, to whose wisdom and judgment the constituent power is confined, will evoke scorn and derision, if that power is used for granting or withdrawing building contracts, passing or failing students or granting and denying divorces. But the electorate lives in the hope that a sacred power will not so flagrantly be abused and the moving finger of history warns of the consequences that inevitably flow when absolute power has corrupted absolutely. The fear of perversion is no test of power".

Though great prescience may be attributed to these words, the hope that a certain power, explicit or implicit, will not be abused is belied by recent experience

The learned judge said that if there are unamendable features of the constitution, which, beyond the pale of reasonable controversy, form part of the basic structure, one of them is that "the nation is governed by a government of laws, not of men". But when laws themselves could be bent to make a government of men possible, one has to see how this distortion of constitutional purpose can be eliminated.

The judge further said, "If the democratic form of government is the corner-stone of our constitution, the basic feature is the broad form of democracy that was known to our nation when the constitution was enacted, with such adjustments and modifications as exigencie may demand, but not so as to leave the mere husk o popular rule".

But then, the Supreme Court found even extreme adjustments valid. Is it not time to remove the ambiguity?

MAX RADIN said, "Those of us who have learned humility have given over the attempts to define law." Mr. Justice Chandrachud would not be daunted He said, "Forgetting mere words which, Tennyson said 'like Nature, half reveal and half conceal the sou within', the substance of the matter is the rule of the majority and the manner of ascertaining the will o the majority is though the process of elections".

But, have we not been exposed to frequent spells o President's rule in states for long periods and the extension of the life of a legislature even within the the prevailing law ?

With his penchant for the picturesque, the Judge said, "The swallow with its pointed wings, forked tail a curving flight and twittering cry is undoubtedly a harbinger of summer. . but to argue that the summe of totalitarian rule is knocking at the threshold is to take an unduly alarmist view of the political scene as painted by the (39th) Amendment. Very often, as said by Sir Frederick Pollock, if there is any rea danger, it is of the alarmist's own making".

Even while sharing this optimism, one may still like to see that the constituent power does not permit of a perversion like the 39th amendment or the projected earlier one (or is it later?) seeking to immunise a person from the legal process for offences, civil o criminal.

"EQUALITY IS THE faith and creed of our democratic republic and without it, neither the constitution nor the laws made under it could reflec the common concience of those who owe allegience to them... A constitution which, without a true nexus denies equality before the law to its citizens may, in a form thinly disguised, contain reprisals directed agains private individuals in matters of private rights and wrongs. The English Acts of Attainder beginning witl the one passed by the English parliament in 1459 after the commencement of the wars of Roses or the "Privilegium" in Rome are only some of the historica instances in point. Speaking of Bracton's famous passage which contains the admonition that the King ought to be under the law because the law makes him king, Sir Frederick Pollock says that there you have in a nutshell the great point of constitutional freedom tha law is not merely the instrument of government, bu the safeguard of each individual citizen's public right and liberties".

Yet law, as upheld by the Supreme Court, denied the citizen even a common law right to life, let alone liberty.

Are all of us as certain as the judge that "the rule of law means that the exercise of powers of government shall be conditioned by law and that, subject to the exception to the doctrine of equality, no one shall be exposed to the arbitrary will of the government" ? Was Dicey's prescription true in our case, that is, "The constitution is not the source but the consequence of the rights of individuals, as defined and enforced by the Courts ?"

The charm of the English Constitution is that it does not exist Ours does. Despite the guarantee of equality before law and equal protection o laws and the claim that its denial is the negation of the rule of law, was not the classification during the emergency so absurd as, in effect, to lead to the extinction of equal protection ot laws ?

"THE MOGHUL Emperor, Jehangir, was applauded as a reformist, because soon after his accession to the throne in 1605, he got a golden chain with sixty bells hung in his palace so that the common man could pull it and draw the attention of the ruler to his grievances and sufferings. The most despotic monarch in the modern world prefers to be armed, even if formally, with the opinion of his judges on the grievances of his subjects."

Was this preference evident during the emergency or was not its absence found to be within the constitutional framework ?

"The British Parliament in its unquestioned supremacy . could, with impunity, legislate for the boiling of the Bishop of Rochester's cook". And our Parliament could, perhaps, do no less !

'Whatever pleases the emperor has the force of law' is not an article of democratic faith. None is likely to disagree with the judge; but this, at least, seemed to be an article of constitutional validity.

Mr. Justice Mathew said in the same case that a power must be lodged somewhere to judge the validity of an election; in whichever authority this power is lodged, "it cannot be resolved on considerations of political expediency." Yet, in effect, retrospective amendment was precisely an exercise in expediency and was perfectly legal

He said, "A despotic decision without ascertaining the facts of a case and applying the law to them, though dressed in the garb of law, is like a bill of attainder. It is a legislative judgment." Yet the point is at best debatable whether the proposed immunity from legal process for all offences, sought through a projected constitutional amendment, would have been valid. Is it not time to make the constitution simpler, clearer and beyond possible equivocation ?

ST. THOMAS Aquinas said that since the end of law is common good, the law should be framed not for private benefit but for the common good of all citizens. Yet laws for private benefit have been found to be valid. John Locke said that those who wield legislative authority should govern by "promulgated *established* laws not to be varied in particular cases"

Mr. Justice Mathew said that "even if a power is given to a body without specifying that the rules of natural justice should be observed in exercising it, the nature of the power would call for its observance". Yet, after the decision on the *habeas corpus* case, one is in doubt about the citizen's common law and natural justice rights.

Mr. Justice Mathew said, "If the amending body evolved new norms for adjudging the validity of the particular election, it was the exercise of despotic power and that would damage the democratic structure of the constitution." Yet several laws could be placed beyond the pale of judicial review by the simple artifice of placing them in the ninth schedule.

The Judge recognised that "the major problem of human society is to combine that degree of liberty without which law is tyranny with that degree of law without which liberty becomes license." "It was Montesquieu who saw the light," by separating judicial power from legislative and executive branches. It is "not a theoretical, philosophical concept. It is a practical, work-a-day principle" Mr. Justice Mathew said (and this was during the emergency), "A sovereign in any system of jurisprudence is not like an oriental despot who can do anything he likes, in any manner he likes and at any time he likes....... ..The rule of law postulates the pervasiveness of the spirit of law throughout the whole range of government in the sense of excluding arbitrary official action in any sphere ...It is based upon the liberty of the individual and has as its object the harmonising of the opposing notions of individual liberty and public order".

THE WHOLE controversy about the emergency provisions of the constitution has to be seen in this light. It is not a question of "humanising" but of "abolishing" these provisions and evolving a system where, even in the worst of circumstances, the liberty of the individual is not arbitrarily taken away, the life of a citizen is not at the mercy of the executive and the rule of law never remains suspended even for a moment, not in a narrow, legalistic sense but in the sense of law as *established* by conventions as much as law *prescribed* by parliament.

Mr Justice Mathew has ruled that the suspension of the remedy for the enforcement of fundamental rights depends upon a valid proclamation of the emergency. It is government's duty to test the validity of what was done on the night of June 25-26, 1975

Mr Justice Holmes' observation that great cases like hard cases, make bad law has been quoted by Mr. Justice Khanna; which is why, apart from constitutional amendment, it may be useful to reopen the *habeas corpus* judgement in today's atmosphere which is not the same as the suffocating atmosphere of the emergency when almost every case became a *cause celebre*

IT WOULD be appropriate, at this moment when government is proposing to bring forward a measure to remove the obnoxious provisions of the 42nd amendment, that a whole new look is taken at the Constitution and its practice. Twenty-seven years is long enough period to have gathered sufficient experience. The upsurge of nationalism which was an outstanding contribution of the Gandhi era made for a strong centre. The maturity of politics within this nationalism may call for greater federalism There may be some merit in retaining the Rajya Sabha and the legislative councils not as second chambers but as bodies dealing exclusively with federal and sub-federal matters which may be outside the purview of the Lok Sabha and the assemblies There is scope for a federal government and for a federal judiciary as distinct from central government and the Supreme Court. A whole new look at the election chapter is called for. An integration of directive principles and fundamental rights may have to be thought of More than anything else the emergency provisions will have to be considered afresh, not merely refined Since the

inth schedule is under article 31 and since the Janata arty is committed to abolishing the fundamental (as ifferent from legal) right to property, the scrapping f this article may be necessary. This will automatically protect the property laws, since the right is not undamental The amending power of parliament may have to be restricted at least for a specified period f 10 or 15 years. The President may be retrieved rom ritualism and given some status of elder counsellor, subject, of course, to the cabinet system of overnment in a parliamentary democracy The provisions for the dissolution of state assemblies and ismissal of state governments may have to be reviewed in the light of the unsavoury record of the last wo decades There may be need to give statutory asis for panchavati raj institutions The language issue, unless subjected to a fresh scrutiny, may strike t the root of our polity.

MORE THAN anything else, the constitution should be made much briefer, much simpler It hould shed not only fat but ambiguity Today the onstitution is a paradise of lawyers It must become living symbol of people's sovereignty

The time has come for a second republic That is he meaning of the epochal events of March this year

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Towards People's Involvement

SAHADEVA

SO MUCH has been said and written about the urban elite's responsibility to the rural poor for ome decades now that one wonders whether anyone —including the planning commission—is serious bout it. A running theme of sermons from those n authority is that development cannot be an exclusive government function. "Community effort", aided self-help", "voluntary agencies' role", "industry's debt to the people"—these are some of the hrases which have been bandied about.

But has government ever been serious ? Community development failed because there was more of dministrative tutelage than of community or deveopment Aided self-help has succeeded to some extent n recent years, but there are already signs of bureauratisation of the idea If voluntary agencies have done ioneering work, it is despite the government which ften takes a patronising approach to these bodies. And there have been complaints of political obstacle t the point where the work of these agencies threaens local entrenched interests And the few entrereneurs who try to develop the areas in a manner hat they may be set on the road to self-reliant growth re often regarded as "intruders" A recent newsaper article spoke of an SDO asking a well-meaning ompany executive not to extend the zamindari of e boss And, of course, there is a purely political and uninformed) criticism of any genuine effort by nyone.

The planning commission, undoubtedly, should be aving some idea of non-governmental agencies doing iverse jobs of rural development It is time an evaluation is done of their work, some decision taken on the kind of government support which will not dilute the voluntariness of the work or degenerate into patronage, some data are made known to the people and serious effort is made to involve, students, women, industrialists, newspapers and trade unions in rural development and in raising the cultural consciousness of the village people.

And while planning new infrastructures, the planning commission should consider how a village post office, communication centre, school, health centre and the rest can be integrated into a scheme which will be autonomous and outside the present omnibus headquarters organisations staffed by or looking after a mercenary bureaucracy whose prime concern is to preserve and further inflate their high wages. As and when new autonomous schemes based on target-oriented field staff without being subjected to hierarchical tyranny come up, the present headquarters organisations should disappear Supervision should be slowly handed over to identified voluntary agencies.

Low investment schemes with a high employment content it would seem, have been tried by a few voluntary organisations Some enterprising municipal bodies have taken up schemes for the use of waste for fertiliser and energy There are institutions trying to work out simpler and more efficient farm tools, simple sanitation methods, water purifying devices for villages, to mention only a few tasks of great social validity Solar cookers and windmills are being experimented upon

One of the vital tasks of the planning commission should be to evaluate these efforts and integrate them in the total planning process. Gandhi's main difficulty with electricity was that the people might be at the mercy of a few functionaries. If the planning commission believes that its efforts should be directed as much towards people's self-reliance as towards welfare, it should address itself to the tasks of promoting local skills, voluntary effort, social organisations, students involvement and similar objectives If the bureaucracy of the commission has other ideas, it should just be pushed aside

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Ideal Villagers

We have got to be ideal villagers, not the villagers with queer ideas or absence of ideas about sanitation and giving no thought to how they eat or what they eat Let us not, like most of them, work anyhow, live anyhow Let us show them the ideal diet. Let us not go by mere likes and dislikes but to the root of those likes and dislikes If we should have electricity in every village home, I should not mind villagers plying their implements and tools with the help of electricity But then the village communities or the state should own power houses just as they have their village pasture. . . .The village movement is as much an education of the city people as of the villagers

—*Mahatma Gandhi*

Nehru's Heritage Must Be Defended

GIRISH MATHUR

TO COUNTER-POSE Gandhiji and Jawaharlal Nehru is to miss the essential unity in the thoughts of the two. They spoke different languages—not only were their idioms different, the concepts they used to indicate their goals appeared to be conflicting. Jawaharlal Nehru clashed with Gandhiji on many an occasion and entered into public debate with him. At times it appeared that their relationship had reached the breaking point. But the break never came. Nehru was often accused by his comrades of "compromising" with Gandhiji and "surrendering" to him for questionable reasons. Gandhiji's followers were never happy about his "weakness" for Nehru. What Nehru's comrades and Gandhiji's followers failed to see was that the two shared the vision of India they wanted to build That is exactly what Gandhiji meant when he said (while naming the socialist Nehru as his successor and not any of the loyal Gandhians who probably possessed better organisational and administrative skills) that he would soon speak his language

Those who accuse Nehru of an urban bias as against Gandhiji's advocacy of the village, seem to have forgotten that he regarded "metropolitan life" as an evil consequence of "modern industrialism and capitalist structure" which produced "biologically unstable societies" and resulted in "sterility and racial decadence". He held that as urban life "loses its vitality", people in big cities take to "more and more stimulants, drugs to sleep or to perform other natural functions, foods and drinks that tickle the palate and produce momentary exhilaration at the cost of weakening the system" That is why he thought that "with all its splendid manifestations and splendid achievements we have created a civilisation which has something counterfeit about it. We eat *ersatz* foods produced with the help of *ersatz* fertilisers, we indulge in *ersatz* emotions, and our human relations seldom go below the superficial plane" At the same time he held that "a village, normally speaking, is backward intellectually and culturally, and no progress can be made in backward environment, narrow-minded people are much more likely to be untruthful and violent" What he wanted was to "discourage this (metropolitan) overgrowth and, at the same time, encourage the village to approximate more and more to the culture of the town"

Neither Gandhiji's nor Nehru's ideas remained static. It will be wrong to quote Gandhiji's 1945 letter to Nehru that "I still stand by the system of government envisaged in *Hind Swaraj*" which he had written some 35 years earlier When Gandhiji was writing the letter he did not have the book with him, but it was not difficult for him to get a copy. Still, he wrote, "I have not *Hind Swaraj* before me as I write It is really better for me to draw the picture *anew* in my own words, and whether it is the same as I drew in *Hind Swaraj* or not is immaterial for both you and me" (emphasis on "anew" added) Gandhiji's talks with Louis Fischer before and after the Quit India movement show that his thinking about the kind of society he wished India to evolve had changed much since the early twenties, the man who in 1921-22 had rebuked some U P Congressmen for agitating against the zamindari system now justified the landless grabbing the vacant lands of the landlords and felt that if the landlords persisted in their attitude, the landless would overpower them.

JAWAHARLAL NEHRU's experience of the freedom struggle and the peasant movements in U.P. had led him to Marxism by the early thirties, but he rejected it by the mid-forties and gradually began moving to the approach which found expression in his *Basic Approach* and *India Today and Tomorrow* which he wrote in the late fifties If even after rejecting Marxism, Nehru could not shed its influence, Gandhi too remained under the influence of Ruskin and Tolstoy all along And it was not Nehru alone who was considered to be a modern man; G. D. Birla who knew Gandhiji and also the uses of Gandhiji for himself says that the Mahatma was more modern than he Both were western in their habits (punctuality, for instance) and both were essentially Indian to the point of being romantic about things Indian including the Indian peasant, Gandhiji being attracted by his simplicity and his purity and Nehru by the qualities he displayed in bearing sufferings and fighting for his due

Gandhiji's abhorrence for violence was shared by Nehru even if he did not accept non-violence as a creed. Gandhiji told Fischer, "I am a social revolutionist. Violence is bred by inequality, non-violence by equality" Nehru took a historical view of violence. He told the Lok Sabha in 1954, "Where upheavals occur they are products of history, and violence, defeat and civil war govern the subsequent events Some Hon. Members seem to think that in order to have progress they must destroy. They think that by increasing the conflict and bitterness they can have a clean slate to write upon No country has ever had a clean slate to write upon, not even after the biggest of revolutions. No one should deliberately destroy something which is worthwhile in order to build something which may be good in certain circumstances." His objection to communism was its emphasis on violence. "Communism charges the capitalist structure of society with violence and class conflict I think this is essentially correct The question is how to get rid of inequality and have a classless society with equal opportunities for all Can this be achieved through methods of violence or is it possible to bring about changes through peaceful methods? Communism has definitely allied itself to the approach of violence Even if it does not indulge normally in violence, its language is of violence, its thought is violent" He repeatedly said, "We want to do away with classes, but by the method of winning over people. I admit class struggle, but I do not want to aggravate it I do not want to be obsessed with it. I want to get rid of it as far as possible without aggravating it"

IT WAS precisely to avoid a violent eruption of class struggle in the country that Jawaharlal Nehru opted for a mixed economy He repeatedly pointed out that acquisitive society and the "free enterprise system" had outlived their relevance and were controlled and restrained even in the countries in which they first came up He emphasised that the "strongest urge today is for social justice and equality", and unless the state responded to it "it might well become a police state" But he also saw that fully controlled economies led to authoritarianism and totalitarianism which he

regarded as irrational growths. He was faced with another dilemma. From the historical point of view he saw that the 'shell' of the Indian system was capitalistic while its 'essence' remained feudal; in this context the slow pace of growth that would take place without the state taking on certain economic responsibilities would lead to "monopolies and aggregations of economic power." At the same time, he realised, as he told the Lok Sabha once, "the price paid for rapid industrialisation has been terrific in some socialist countries. I am certain no country with any kind of parliamentary democracy can possibly pay it". He wanted India to be a parliamentary democracy for various reasons, but he knew that "if there is economic inequality in the country all the political democracy and all the adult suffrage in the world cannot bring about real democracy." At one stage he was even prepared for adjustments in the political system to meet the demands of the task of building a non-acquisitive and egalitarian society, but he emphasised that "political democracy will only justify itself if it ultimately succeeded in producing these results"—by 'these' he meant economic advance in a manner that social tensions (including class war) were reduced and finally defused.

Mixed economy was his answer to the problem of planning economic advance in a democratic set-up. Besides, he believed that "change is essential, but continuity is also essential. The future has to be built on the foundations laid in the past and the present To deny the past and break with it completely is to uproot ourselves and, sapless, dry up". Mixed economy was to be his instrument of change without a break with continuity. Transition from feudalism had not been accomplished anywhere without a break caused by industrial revolution which had taken place in western countries before they took to democracy and in socialist countries in conditions in which civil liberties were not available to their citizens. It was an uncharted path that he took, and he made it clear that, for India, planning was to be a method of trial and error; he had no ready-made model before him but he was sure that India would learn from the mistakes of others. But mixed economy was not an end in itself As early as 1948 when he was not even sure of how to describe it ("call it what you like—mixed economy or something else"), he was clear that it was to be a "transitional stage of economy". He also felt that the transition was not to be smooth. "I rather doubt myself whether it is possible without a conflict or repeated conflicts to bring about these changes because people who are used to possessing certain interests or certain ideas do not easily accept new ideas, and nobody likes to give up what he has, at least no groups like it; individuals sometimes do" His doubts were not unjustified, during the years since he spoke, the conflicts which, he thought, would arise did come to the fore resulting in distortion in the path he sought to pursue.

AT THAT point of time, or later, in the course of the advance on an uncharted path it was not possible clearly to visualise the picture of he social system which would finally emerge from the mixed economy. Nehru sometimes called it the socialistic pattern, at other times socialist pattern, and on other occasions simply socialist society, but he made it clear that the three phrases meant the same thing—a casteless and classless society. He was seeking an alternative to capitalism and communism, possibly, as he himself put it on one occasion, a synthesis of the two. Way back in 1949 he declared that the way to progress in India "need not necessarily be an extreme method belonging to the two rival ideologies (of capitalism and communism). It may be something in-between. In fact, you find in the world today, in most countries, there is an attempt to find other ways which certainly are completely divorced from the old style capitalism and which go towards what is normally called socialism. It may be that in India also we may be able to find some way more suited to the conditions of our people, some middle way". Although he had to be vague, even ambivalent, about the shape of things to come, he was quite clear that "as the socialist pattern grows, there is bound to be more and more nationalised industry, but what is important is not that there should be an attempt to nationalise everything, but that we should aim at the ultimate result which is higher production and employment."

INDUSTRIALISATION WAS one of the issues on which Nehru came to be criticised by those who called themselves Gandhians. Inaugurating the Perambur (Madras) Integral Coach Factory on Gandhi Jayanti in 1955, he said, "Perhaps some people might wonder what is the connection between Gandhiji and this big factory, for apparently he was not enamoured of great factories and thought much more of the village and the home. I feel that this idea is due to a basic misapprehension. I am quite sure, if we had the good fortune to have Gandhiji with us today, he would have been glad at the opening of this factory Many, I suppose, took the letter of what he said and paid little attention to the spirit, to the underlying philosophy for which he stood". Nehru never had any doubt that "India has to be industrialised as rapidly as possible And industralisation includes, of course, all kinds of industry—major, middling, small, village and cottage. However rapid our industrialisation may be, it cannot possibly absorb more than a small part of the population of this country in the next ten, twenty or even thirty years. Hundreds of millions will remain who have to be employed chiefly in agriculture. These people must, in addition, be given employment in smaller industries like cottage industries and so on". He went on to say that "we have to develop the village and cottage industry in a big way, at the same time making sure that in trying to develop industry, big and small, we do not forget the human factor. We are not merely out to get more money and more production. We ultimately want better human beings"

Differences of semantics and rhetorics apart, both Gandhiji and Nehru sought the same ends It was not a coincidence that towards the end of his life Gandhiji wanted Jayaprakash Narayan to be the Congress president while Nehru's choice was Narendra Deva although JP was quite close to him. Nor was it a coincidence that even after JP left the socialist movement and formally embraced Gandhism, Narendra Deva continued to speak in the language of Marxism, although the differences between the two socialist leaders at that time were only those of style and not on fundamentals. (Later, like Nehru, Narendra Deva never approved of the socalled cultural freedom campaign which JP joined.) Still, the Gandhians insist that Nehru gave up the Gandhian path (as they interpret it, going by the letter of what Gandhiji said and ignoring the essentials of his thinking), and to substantiate their point they accuse Nehru of neglecting agriculture. The charge is belied by the allocations for

agriculture and allied subjects like irrigation and rural development in the annual budgets and the five year plans during Nehru's life time. At the theoretical plane, agriculture was the major plank of the mixed economy which Nehru advocated. On one occasion he said in the Lok Sabha, "People talk of the public sector and the private sector. Does the House realise that the overwhelming part of the private sector is the private sector of the peasants in India? That is the real private sector in our country, not the few private factories we have". And he told the audience at the Perambur function to 'remember that perhaps the biggest scheme in India is not this big factory or hundreds of other big factories, but the hundreds and thousands of community projects that are changing the face of India today" He spoke in glowing terms about these projects whenever occasion arose

NEHRU'S ENTHUSIASM about the community projects did not prove to be well-placed which, however, does not show that he was callous towards the needs of the rural sector. In fact, his pre-independence political career bears out that he knew the peasantry better and was more sensitive to its problems than those whose reputations rested on their peasant origins or who later claimed to speak for the peasant masses because of their rural backgrounds. In U P it was under his personal leadership that the Congress took up the cause of the peasantry in the twenties and the thirties, and it was on his insistence that the provincial Congress undertook enquiries into agrarian conditions and initiated tenancy reforms long before independence. Indeed, it was the ground prepared under his leadership which enabled the Congress ministry in U.P. to be the first in the country to abolish intermediaries in land after independence When the city-born and bred Nehru came in touch with the U P peasantry during the agrarian struggles of the early twenties he was disturbed by its "progressive pauperisation" and wrote, "I was filled with same and-sorrow —shame at my own easy-going and comfortable life and our petty politics of the city which ignored the vast multitude of the semi-naked sons and daughters of India, sorrow at the degradation and overwhelming poverty of India".

The community development programmes did not yield the expected "revolutionary" results largely because these were not accompanied by land reforms Nehru had all along maintained that in India land was the central issue, and after independence he missed no opportunity to express his annoyance at the slow pace of land reforms which had acquired greater urgency because of the food problem He wrote in the *Basic Approach*, "Land reforms have a peculiar significance because, without them, more especially in a highly congested country like India, there can be no radical improvement in agriculture. But the main object of land reforms is a deeper one They are meant to break the old class structure of a society that is stagnant" In most states even the abolition of intermediary interests was not taken in hand till a decade after independence. In some it was held up by judicial processes. In others like U.P., where it was undertaken, it made hardly any difference to the old class structure, feudal relations remained entrenched and new vested interests came up. In some states, even now, land records have not been fully compiled ; there are regions where unofficial estimates of concealed tenancies cover almost 80 to 85 per cent of the holdings, and in others share-cropping still flourishes. Official studies reveal that the benefits of various schemes for agricultural development and technological improvements could not reach the needy and were appropriated by the new vested interests which had developed as a result of the half-way house land reforms ; these interests, in fact, have blocked the extension of land reforms and frustrated land redistribution. In his life time Nehru fretted and fumed but could do nothing about it.

JAWAHARLAL NEHRU had been in office for barely five years when he felt constrained to remark that "there is hardly a country where the gap between ideals and performance is so big as in India." The occasion was a discussion on planning process. His concept of centralised planning did not mean some people sitting at the top and drawing up plans. As he told the planners, "A slight fear seizes me as I see all this planning and organisation. We might begin to think, as many of us are apt to do, sitting in big buildings and big offices, it is we who are doing the job We are doing nothing of the kind. We are only indicating how the job is to be done". For him the main question was "how to involve the people", and he sought to draw upon his experience of the mobilisation of the people during the freedom struggle. However, the lack of mobilisation effort—to put it dfferently, the manner of mobilisation—has gone against the interests of the small and landless peasantry and, as the so-called green revolution shows, it has taken a direction which is against Nehru's belief that in agriculture machine-power is to be complementary to manpower It has also had the effect of vitiating the path of industrialisation he had laid when he repeatedly emphasised the need for balanced development of different sectors of industry—heavy, medium, small and village. When his attention was drawn during the third plan discussions in Parliament to industrial advance becoming lop-sided, he agreed that it was so and asked the House to "correct it" But his critics, despite their veneer of Gandhism, thought only in terms of the prevailing methods of production, organisation and motivation. As a result, they set private sector norms to be emulated by the public sector laying emphasis on profitability as understood in the private sector When Nehru talked of the public sector acquiring commanding heights in the economy he was thinking not merely in quantitative terms but also in terms of the public sector setting norms and pace for the private sector and making it accountable to society. Social responsibility of the private sector was the essence of Gandhiji's trusteeship theory.

In fact, the path of development as envisaged by Nehru and contained in the model which carries the name of Prof Mahalanobis was accepted only in parts, and even in these parts it was distorted in course of implementation. An example of distortion is the case of coal mining which had been reserved by the industrial policy resolution for the public sector. Eight years after the resolution was adopted, Nehru disclosed that "many state governments have gone about distributing licences widely to private owners and now we find that we are tied up with these licences...Our coal policy has been affected very much by the manner in which the state governments have proceeded. But we do not want to do anything now which will come in the way of production". To cite another example, for Nehru, land ceilings and redistribution were the centre-pieces of the land reforms programme, but what happened to land-ceilings is known to everyone. Economists would ascribe these distortions to "compulsions of economic development" while the political scientists would explain them in terms of in-built resistance of the power structure

4 DPD/77 4

and the pressures generated by political linkages

Nehru's emphasis on growth with social justice envisaged not merely increased production but a system of distribution aimed at reducing disparities. But the redistributive aspects of Nehru's path were either not accepted or distorted. As a result he found himself faced with the question : Where had the 42 per cent increase in national income and 20 per cent increase in the per capita income generated during the first and the second plans gone ? Another result was that production pattern took an elitist turn which was not unnatural since the half-way house land reforms had not opened up the vast rural market and had not generated effective demand in the countryside

THE MAHALANOBIS enquiry into the emergence of monopolistic trends was the first step taken by Nehru to correct the distortions. He also sought to secure acceptance of the aspects of his strategy for growth with social justice which had been resisted till then The country-wide debate he initiated on the national goal to spell out the steps towards socialism as he visualised it, culminated in the Bhubaneswar Congress resolution. But he was not to live long, and his initiatives remained unpursued ; the result is the crisis in which our economy finds itself today Even so, he has left behind a rich record of achievements and a rich heritage Foremost among his achievements was that he put us on the road to independent economic development. It is on that road that we have to go, but further advance is possible only if we know what went wrong and where Without identifying the mistakes and seeking their correction, it is difficult to defend his heritage and carry it forward It has to be defended and carried forward □

It is to this temper of peace that I want especially to direct my mind and your mind. We are in the midst of an international crisis and, perhaps, even a greater crisis that confronts us today is the crisis in the spirit of man We have built up a great civilisation and its achievements are remarkable. It holds the promise of even greater achievements in the future. But while these material achievements are very great, somehow we appear to be slipping away from the very essence of civilisation . .

We live in an age of paradox and continuing crisis We talk of peace and prepare for war. We discuss internationalism and One World and yet narrow nationalisms govern our activities. There is said to be a conflict of ideologies and this argument and the conflict that flows from it usually take place without much thought of the ideals and objectives that should govern us We move from one temporary expedient to another, never catching up with the pace of events. Priding ourselves on shaping history, we function from day to day as slaves of the events that inexorably unroll themselves before our eyes and fear possesses us and hatred follows in its train.

If we seek peace we must labour for peace and not for war If we seek harmony and goodwill among the various peoples of the world, we must not preach or practise hatred It is true that there is plenty of violence and hatred in the world today and we cannot permit this to triumph, as we cannot submit to any aggression We have to combat evil and aggression; in doing so, we have to remember not only our aims and objectives but also that the means we adopt should be in conformity with them

Jawaharlal Nehru

Shadow-boxing on The Economic Front

BALRAJ MEHTA

A DISQUIETING feature of the current national scene is the shadow-boxing in which politicians are freely indulging on the problems of economic policy and planning. The leaders of the new ruling formation in particular are very much prone to this pastime. This stems from the false idea entertained by many among them that, representing as they do a dramatic and in many ways an unanticipated break with an entrenched political set-up which ruled the country for thirty years, they were called upon to offer an equally devastating rejection and repudiation of the social and economic development goals and processes of the past years. This sentiment is articulated often in naive an dsometime also in grotesque forms. It will, of course, be equally pointless to raise the counter-cry of a danger to the so-called established national policies and the preservation, as if, of the national heritage itself The upshot of all this contention is to vitiate and stultify any meaningful effort to come to grips with the real tasks and the challenges which have to be faced

The fact to be reckoned with is that the processes of planned economic and social development have been stalled for well over a decade The periodic exercises in reorientation and recasting of the plans and the instruments of planning and implementation to suit political exigencies and pressures and the fanfare surrounding these exercises during the previous regime and again under the present political dispensation have been only a good enough cover not to plan at all and still less to honour the obligations and discipline that planned development demands

CUTTING CORNERS

The fact also to be recokoned with is that the Indian economy made a significant headway in the first decade of the planned development effort between the mid-fifties and the mid-sixties. But there has been virtual stagnation afterwards Rates of savings and capital formation which had picked up in the earlier period showed sharp deceleration in the subsequent period The current consumption in the last ten years has been, therefore, sustained largely by running down real assets built earlier, without replenishing them The Janata government has, for this reason, inherited an economy with limited reserves to draw upon. To put the economy back on the growth curve will, therefore, be a difficult and arduous haul Populist slogan-mongering will not be, as it never was, a good enough substitute for meaningful and integrated effort This should have become clear enough to the Janata leaders even during the brief seven months they have held the reins of government. The pity is that this does not seem to have happened and the more the difficulties they encounter the stronger is the tendency on their part to cut corners and shout slogans

Indian people, after their painful experience of the past many years when they were fed by promises of *garibi hatao* to begin with and slowly pushed to undergo the horrors of the 19 months of the emergency, are not going to be easily taken in by similar gimmicks by politicians all over again.

It is silly to talk of employment generation or of social justice in isolation from the overall pattern and level of economic activity in society. It will, therefore, not do, as was done from time to time under the previous regime, merely to set aside certain sums of money in the government's budget for special employment schemes and measures of relief and to make pompous claims on that basis.

The net effect of such shortcuts can only be that while a selective number of people may get doles or nonproductive employment, employment potential and availability of goods and services in the overall will be adversely affected and available resources, financial and physical, which are not in plenty, will be diverted from investment and productive activity. At the same time, inflationary pressures will be generated and will in due course assume virulent form and proportion. Any attempt to look for easy options in order to win short-term kudos will give disastrous results—social, economic and, finally, political

PRESSURE GROUPS

The first requirement of any meaningful planning is to conserve resources Subsidies in various forms and of different kinds will have to be decisively withdrawn. The pricing policies will have to be adjusted so that the costs of goods and services rendered by the state are fully recovered from those in urban as well as rural sectors who take advantage of them Full returns from public investment will have to be ensured so that surpluses are generated for further investment Additional resources will have to be mobilised from sources where additional incomes generate, such as the producers of marketable surpluses in industry and agriculture These are precisely the imperatives of development which are still being neglected.

What seems to be missed is that any tendency towards sacrificing the requirements and demands of development in order to satisfy the demands and requirements of sections, groups and classes which might be regarded as constituting the support-base of the government at any point of time and with a view to widening and consolidating that support-base has to be determinedly combated This, of course, requires a rare political courage on the part of the party in power There are no signs of it yet

Certain disturbing tendencies, on the other hand, are showing in political as well as in economic and social approach and outlook. Such controversies as claims of industry versus agriculture, of small industry versus heavy industry and so on in the allocation of financial resources are not only false but are also a cover for the entrenched vested interests seeking to advance their position in the economic and social structure They also divert attention from the imperative of development planning and fundamental structural reforms in agriculture and industry which are necessary for the growth of the economy on a sustained and steady basis

OBSESSIVE CONCERN

It is suggested by the votaries of higher priority for agriculture that the past plans have proved a failure because the planners have been pumping more financial resources into industry, especially heavy industry, and starving agriculture of funds and investment It is argued that this resource allocation pattern should change and agriculture should have higher than its traditional share of around 25 per cent

in the total financial size of the plan.

Such obsessive concern with financial quantities in the system of Indian planning is misleading and cannot possibly explain the failure of planning, which is general and pervasive and is not confined to the agriculture sector. It is a manner of reasoning which might be of interest to the lobbies of vested interests operating at different points in the economic structure but provides no rational or sensible insight into the problems of India's social and economic development.

It is, indeed, a distortion of reality to say, especially after 1960, with the launching of the new agricultural strategy, that agricultural development has suffered on account of greater priority for industry in the allocation of resources. The resource distribution has, on the contrary, been a far bigger constraint on industrial investment. The worst hit, of course, has been the social service sector.

So far as the agricultural sector is concerned, the direction of resources in its favour has been considerable and impressive. It is not at all enlightening to compute this in terms only of the sectoral allocation of plan funds. There have been years of crash programmes for agricultural production with their accent entirely on additional budgetary allocations to achieve quick results which, of course, always failed to materialise. Though the commercial banks still remain oriented towards providing working capital needs of the industry, agriculture has begun to claim a sizeable share of bank credit.

Shift in Favour of Agriculture

But the most important change has been a decisive shift in the terms of trade in favour of agriculture through a deliberate policy of "incentive procurement prices", especially of foodgrains. The huge incomes derived by surplus farmers on this account have been supplemented by the rich farmers during the years of comparative shortages by black market sales of their grain hoards. The higher incomes that have accrued to surplus farmers have, moreover, been tax free. They have been, in addition, getting subsidised supplies of various inputs, among them irrigation, power and fertilisers. The huge investments in irrigation, power and fertilisers, therefore, do not give returns and are actually showing big losses so that resources for additional investment in these infrastructural facilities have to be drawn from other than those who benefit from them. It will be also more useful and to the point to look at the state of affairs in the agricultural sector in terms of the material inputs that go into its development. The injection of material inputs into agriculture under the new agricultural strategy, if carefully assessed, would appear to have met, and in some cases even exceeded, the plan targets.

The reason for the failure of agriculture to achieve targets of production, and even more its failure to provide adequate surpluses for the market at reasonable prices during years of shortages has, therefore, to be found elsewhere than in inadequate allocation of funds or material inputs under the plans. This is important also because the kind of financial incentives and material inputs that have been relied upon under the new agricultural strategy will be more difficult to find now than was the case in the last ten years or so. The energy crisis has a close bearing, for instance, on the supply and costs of inorganic fertilisers. The economy is so denuded of surpluses that any further diversion of resources from other sectors to agriculture has become very difficult.

It is indisputable, of course, that strains in the economy cannot be relieved and the stability which is essential for economic development to make any headway cannot be restored unless Indian agriculture is able to produce adequate surpluses. The question, however, is whether it is at all possible to achieve this objective by mere allocation of more plan finances at the risk of further decay in social services and stagnation in industrial investment.

Need for Structural Changes

There can be no avoiding or evading of far-reaching institutional and structural changes if accelerated growth on a durable basis is desired. A broadening of the social base of agricultural production and productivity, freeing the pattern of investment and production from the present tie-up with the consumption requirements of upper classes and expansion of employment are, indeed, the imperatives of a sound economic development policy. The solution of India's economic problem can also not be found by relying on sophisticated fiscal and monetary instruments, without structural changes in economic and social relations. The idea that the deadlines for completing the land reforms or at least the distribution of surplus land under the ceiling laws can be set from time to time and then conveniently ignored, that the investment and production pattern can be left to the market forces to determine, that trade in foodgrains and wage goods can be left for the private enterprise to regulate and that even conventional tax measures to raise resources for public sector investment can be dispensed with has simply not worked in the past and will not work again. Experiments in these directions only sharpen the basic contradictions in India's economy and society □

THE BEAUTY OF INDIA

India with all her poverty and degradation had enough of nobility and greatness about her, and though she was overburdened with ancient tradition and present misery, and her eyelids were a little weary, she had "a beauty wrought out from within upon the flesh, the deposit little cell by cell, of strange thoughts and fantastic reveries and exquisite passions". Behind and within her battered body one could still glimpse a majesty of soul. Through long ages she had travelled and gathered much wisdom on the way, and trafficked with strangers and added them to her own big family, and witnessed days of glory and of decay, and suffered humiliation and terrible sorrow, and seen many a strange sight; but throughout her long journey she had clung to her immemorial culture, drawn strength and vitality from it, and shared it with other lands.

Today it (India's old culture) is fighting silently and desperately against a new and all-powerful opponent—the *bania* civilisation of the capitalist west. It will succumb to this newcomer, for the west brings science, and science brings food for the hungry millions. But the west also brings an antidote to the evils of this cut-throat civilisation—the principles of socialism, of co-operation, and service to the community for the common good.

It may be that when India puts on her new garment, as she must, for the old is torn and tattered she will have it cut in this fashion, so as to make it conform both to present conditions and her old thought.

JAWAHARLAL NEHRU

Ram Manohar Lohia-His Life and Thought

Dr. Parimal Kumar Das

IT IS a measure of change, brought about as a result of the historical events of March 1977, that after a decade of his death, Ram Manohar Lohia is being talked about, for as he once said, "people would listen to me but only after my death". 'Doctor Saheb', as he used to be affectionately called by his innumerable admirers, was an original thinker, an erudite scholar, a prolific writer, an intellectual of extraordinary brilliance, and yet, a man of the masses in its truest sense. He was a prince among patriots and a universalist as different from metropolitan A relentless fighter, a socialist crusader against all kinds of injustice and inequality between the rich and the poor, the Brahmin and the Sudra, the white and the coloured, man and woman, Lohia was the initiator of a non-Marxist radical movement in India as well as in the world Even when Lohia thought of "communism as the latest weapon of Europe against Asia", he was neither anti-Marx nor pro-Marx. Deeply rooted in Gandhian ideas and values, Lohia's thoughts steered clear of governmental, as well as, monastic Gandhism. His was heretic Gandhism For in his own words "Gandhism as opposition was revolutionary in its own fashion , as government, it is most staid, respectable and colourlessly conservative"

To comprehend Lohia, it is essential to understand his philosophy of history. To him, "all human history hitherto has been an internal oscillation between class and caste and external shift of prosperity and power from one region to another' Unlike Marx, Lohia saw a causal relationship between class and caste According to him "what distinguishes caste from class is immobility that has crept into class relationship . class is mobile caste Caste is immobile class". Lohia's outlook on civilisation had taken him to the examination of the direction of organisational or technical efficiency in every society or civilisation. "Man", according to Lohia, "stands before the choice of hitting out into yet another direction of maximum efficiency or walking into a state of total efficiency". To a visionary that Lohia was, the new civilisation would unfold itself as an "attempt to achieve approximation of the human race and the overcoming of class and caste and regional shifts through comparatively equal production in all the world" In the making of this new civilisation, both capitalism and communism are equally irrelevant Even though capitalism and communism differ in respect to the "relations of production", the "mode of production", in both the systems, remains the same. Both are the products of the same technology. "The like debacle of capitalism and communism is equally understood, when they are viewed as parts of a single civilisation that appears to have neared the end of its voyage". Hence, the ingredients of the new civilisation, in the words of Lohia, would be, maximum attainable equality, maximum geographical distribution of power, social ownership, small unit technology, a decent standard of living within national frontiers, a maximum privacy of individual life protected from all collective encroachments, and world parliament and government".

THE TWO important offshoots of Lohia's theory of 'total efficiency', are the small machine technology in the field of economics, and the idea of 'preferential opportunity' as distinct from 'equality of opportunity', in the realm of social relationship. Lohia's persistent demand for banishing English from public life and as a medium of instruction and its replacement by the Indian language was also a part of his desire to increase the 'total efficiency' in Indian society. Much maligned and equally misunderstood during his lifetime on the language question, Lohia itemised "the three distinguishing features of the ruling class in India : high caste, wealth and English language, and the combination of any two of these makes a person belong to the ruling classes of the country".

"Equality of opportunity" in a traditionally unequal society is deception and essentially a doctrine of status quo. Hence, "preferential opportunity" to scheduled castes and tribes, backward classes, the socially backward among the Muslims, Sikhs and Christians and women, is the kernel of Lohia's schemes of social engineering.

Yet another dimension of his theory of "total efficiency' is his concept of the political structure of a "four pillar state", that is, of governments at the level of centre, state, district and village. "It is both a legislative and an executive arrangement. It is a way of life and prevades all spheres of human activity, for instance, production, ownership, administration, planning, education, and the like"

A strong advocate as well as a practitioner of non-violent civil resistance, Lohia believed that "the present century has known only one originator, Mahatma Gandhi, and only one discovery, the atomic bomb". "Civil disobedience both as individual's habit and collective resolve is armed reason, and anything else is either weak reason or unreasonable strength". The stirring words of Lohia would still ring in the ears of his countrymen, when he declared, "It is not necessary for the people suffering from starvation or large scale dismissals to depend on parliament or to wait expectantly for another general election They have this priceless, matchless weapon—civil disobedience—in their hands when injustice and oppression go beyond bearable bounds When constitutional methods have proved incapable of achieving redress, it should be open to the people to violate unjust laws and wrongs and injustices that are inflicted upon them".

LASTLY, LOHIA'S ultimate objective was to accomplish the seven revolutions, with a view to establishing a new world order These revolutions are for man-woman equality, against caste, against productivity imperialism, against the exploitation of the poor by the rich, for demolishing inequality springing from skin-colour, against armament and against encroachment by the collective in the domain of the individual.

I referred to the great unity in the country, which is a wonderful factor. It is not unity of parties so much as the unity of hearts and minds. The million faces of India all bear the same impress today, whatever community or party he or she may belong to.

JAWAHARLAL NEHRU

Where is the Age of Fundamentals ?

IF DR LOHIA was guilty of sparing the causes and spoiling the result, have others done better ? Many in India thought that the British withdrawal, followed by the adult vote, would lead to the sovereignty of the people, whereas it has largely led to the privilege of the elite And planning in India, with all its understanding of the role of the expanding public sector and of the growing heavy industry, admittedly, has taken us nowhere near socialism Even if the poor have not become poorer, the disparities have increased and the entrenched classes have entrenched themselves further

Attacking the causes, therefore, is not as easy as it may seem, it is not merely the understanding but the method that provides the answer There is only one method which will abide The people must be made aware of where the threat comes from Without this awareness, they will lose the battle every time as they have lost the battle in India so far

Dr Lohia's great contribution to Indian political action lay in his ability to promote this awareness His three annas-fifteen annas controversy did a lot more to arouse people's awareness than volumes of dialectical dissertation In raising this, he was not attacking the symptoms but was clarifying issues in a manner people can understand

If one sought only to go to the causes and remedy them without a commensurate public understanding of the processes of socialist action, one would soon find oneself outsmarted by the classes who can always confound the people with slogans of transient popular appeal. That, in a measure, was Nehru's tragedy Soon every institution which he created to protect the people became an instrument of the entrenched sections.

Banner of Revolt

From this premise, Dr Lohia built his philosophy of debunking Here, too, he was fundamentally concerned, not peripherally occupied "You have to liberate the people from the imprisonment of established ideas before you can take them forward", he used to say

In economic matters, he limited himself to a few issues He was for a limit to incomes · he argued against ostentatious urban spending. While he was for modernised production, he was against modernised consumption, that is, he raised his banner of revolt against the huge structures of Delhi, the car and the refrigerator.

Much of this seemed irrelevant, odd and superficial, yet he was going to the core of the matter.

He was not cavilling at the urban upper middle class prosperity. His was a deeper concern. The complacent approach to incomes and urban consumption flowed from a system whereby planning, instead of becoming a people's movement, was reduced to an "exercise" in "projections" and "perspectives" by a few experts The "efficient" idea without the continuous backing of people's participation was bound to result in compromises and adjustments to suit the pressures of the parasitic urban upper middle class The public sector has remained the bureaucratic sector, not the people's sector How will anyone effectively meet the criticism that between monopoly and state capitalism there is little to choose? And is it not true that the elite of Delhi has had a lot more to do with with our politics and economics than the vast masses of this country, the intelligentsia not excluded ?

Only those who speak of growth rates returns, inefficiency and the rest seem to be occupied with the symptoms If one were really to trace performance to first causes, one would find that the basic weakness was in insulating planning from the people Wiping every tear from every eye is not done by expertise alone Gandhi said that when we are in doubt, we should think of the poorest man in the country and ask ourselves if what we are about to do is of any benefit to him.

This advice does not mean that we reject efficiency, what it does mean is that efficiency should always be subject to the people's needs If this had been so, we would not be talking knowledgeably about "recession", "demand and supply" and a "glut" in cement and steel when people languish for want of houses, hospitals and schools; nor would we be speaking of a shortage of nurses and doctors when so many of our young men and women despair of doing anything worthwhile.

It is a poor way of honouring a man's memory to ask that his ideas be accepted after his passing. But it is worse not to consider if, after all, he might not have been right

CIVIL SERVICE NEUTRALITY

The idea of a public servant sitting in a world apart and doling out impartial justice is completely out of place in a democratic society. It is especially so in a dynamic democratic society. The pace at which society moves forward depends on the people, and if there is no intimate connection between the public servant and the people, he will not move forward even if he is efficient The whole conception of the public servant in India has in the past been a static conception. Doing one's job as efficiently and adequately as possible, and impartially, was the conception in British times. Civil service neutrality is a fiction which I have often wondered at I have not been able to understand how any thinking person can be neutral In a period of dynamic growth, we want as civil servants persons with minds, with vision and with a desire to achieve We want persons who have initiative for doing a job and who can think how to do it Can a person be neutral about the basic thing which the state stands for, namely a socialist pattern of society ? Under a democratic form of government different political parties come into power at different times, and I can understand that the civil servant should not be partial to any one party But he cannot be neutral about the basic issues I am not quite conversant with how the civil servants in Britain adapted themselves to the advent of the Labour government I happened to be in Britain about that time, and I heard the bitterest complaint from the Labour leaders about the attitude of the civil service I remember with what extreme feeling Prof. Harold Laski spoke to me about it ... In India we are in a stage where future development depends upon the acceptance of certain basic assumptions and on intelligent, prompt and quick action What is the civil servant to do in such a context ? Naturally he cannot be a partisan of any one party. But must he be inactive and without any view of his own on basic matters ?

JAWAHARLAL NEHRU

SIDE TRACK

Of Human Vegetables, Proteans

NITISH R. DE, WRITNG in *The Hindu*, speaks of our administrative hierarchy with a range which "may even surpass the combined protocol mystiques of the Vatican and the astonishingly complicated self-initiated role of global peace-keeping mission of the Pentagon."

Searching for "types", he comes across the "human vegetables category"—the status quo ante type, playing safe with rules and precedents, shunning risk, afraid of a new situation and seeking to emasculate newness by caging it into "an old time-honoured system of notings in files". They have ambitions, likes, dislikes, emotions and even views They do want good postings and positions and their *forte* is assessing and conveniently using the mood of the boss. The quality of political life or decisions does not concern them, "unless, of course, it affects them personally in an adverse way" Time is not a critical factor for them save when there are compulsions from above. Order is to be brought by the weight of routine, social change is a matter of high policy and once the policy is handed down, it is their job to programme it with all the corners cut, with all the imponderables ignored and trained incapacity asserted They can be linked to inert gas which, as we know, is not without utility.

Then Nitish De spots the Proteans trying to 'understand the metereology of administration, how the wind blows, from which direction and with what velocity" Understanding the dynamics of the power game, they make efforts "calculatingly and purposely to fish in troubled waters", with a cynical disregard of the niceties of the rules of the game, of ethics which "are a synonym of worthless emotionality" Means are but a ladder to an end, the end essentially being built around self. The Proteans change in their behaviour, in their loyalties, in their symbols of speech, to manipulate a culture of false realities so that they can make the best of any situation. "Fidelity is not part of their value system". "In one regime, they drink power in the corridors of New Delhi; in another, the martinis of Washington They have heads"

The third category, "the growth seekers", possess the "mental virus" of achievement, "but they are neither the 19th century robber barons nor the 20th century jungle fighters" "The public aspects of public policy motivate them," they "seek personal growth in tune with larger social objectives, they possess the qualities of head and heart" "They warm up to innovative ideas, gear their energies to new exciting possibilities and respond to meaningful challenges". For them the solution should "lead to a dynamic system design so that the problems do not recur". They try to be increasingly able to learn continuously, seeking to create the same conditions for their colleagues, doing things but not using human beings as fodder. "They manipulate situations but not men" "Their strength lies in owning up their own inner dynamics . . To them, a career is an opportunity to work, to contribute, to learn and to grow"

Naturally, since so much is said of them in this context, Nitish De refers to Albert Speer and Robert McNamara—who accomplish set (of course, vast) tasks with remorselessness pushing aside whatever comes in the way like 'disposable paper napkin" They belong to 'the tradition of jungle fighters" They have the characteristics of all the three categories mentioned earlier. "Now such types are rare". In any event, they cannot survive in Indian administrative ethos.

If the popular expectation is "that our administrative leaders should be super stars", the vegetables and Proteans (who, probably, constitute "the majority of our dramatic personae") cannot make the grade. "With the growth seekers, it may be a different story As is the situation, they are few in numbers".

Thus do we find "the entropy law operating in the field of administration Whereas entropy is a natural and irreversible process, the negation of entropy is not. It calls for efforts, imagination risk-taking and the ability to anticipate turbulent environment and development of corresponding styles of administration, simultaneously flexible and humanly non-manipulable".

Nitish De (perhaps with most "watchers" of the species) does not find it surprising that "our administrative culture slowly and steadily deteriorates and instead of reaching, step by step, to a higher level equilibrium, cascades down to a lower level of equilibrium" Of course the system does not die, it leads an ailing existence with continuous infusion of oxygen and transfusion of blood More and more financial and human resources are poured in to maintain the same level of performance and, at times, ruefully, "a lower level of performance" Naturally Nitish De's preference is for growth seekers who are "our pearls and, indeed, the hope"

And of Con men and Suckers

WHILE NITISH DE looks at the present, Sunanda K Datta Ray writing in *the Statesman*, looks back beginning with Conan Doyle's Gilchrist "a fine scholar and athlete, plays in the rugby team and the cricket team for the college . a manly fellow", only he was "weak and dishonest" Therefore, off to the Rhodesian police where he "undoubtedly trades on his father's title" Sunanda Datta Ray's point is that "colonial society cannot in its innocence, be expected to tell rejects from marketable commodity" As with men, so with goods "Mccabe's clocks, once fashionable in India, came here only because the firm did badly in a British competition" Thus, Datta Ray, "with apologies to Shaw", says that "those who can, do it at home: those who can't, take abroad their indifferent accomplishments" Macaulay described Clive as "a dunce, if not a reprobate", who was "shipped out because he was good for nothing else"

Not Indians alone were taken for a ride, says Datta Ray Americans, "like Indians and other mental colonials still treat British insignia with awed respect" And Russians too It is not Britain's con trick alone that the author speaks of "It is only when foreigners place an exorbitant premium on the English language that the most insignificant Englishman becomes a prize catch". Datta Ray laments that "this aspect of what Mr Raj Narain calls 'English language imperialism' is usually ignored because it reflects embarrassingly on our own artificial values". "The British mask remains unripped because our posturing plays up to that facade The expatriate's

sham of erudition or elegance or whatever, is flattering to local self-esteem, suggesting that lucrative careers in London have been sacrificed so that great gifts can be placed at the service of a foreign race .. The ordinary British graduate's gin-drenched and time-worn cliches are received with the veneration due to classical profundities".

Datta Ray underscores his point, namely, that so long as "westernisation remains the social goal in Asia and Africa", the expatriate "will not be shown up for the shabby, third-rate misfit that he really is"—to the extent that a failure at home could aspire to be the governor of Bengal

As with men and commodities, so with companies, collaborationists with a "philanthropic" mission and international "experts".

Who can say that there is no link between the proteans (not the human vegetables, of course) and these "adventurous", "enterprising" and "generous" expatriates with their goods, wares and even wiles which may not work at "home"

May be there is more to it than being just gullible Do the proteans not "change in their behaviour, in their loyalties in their symbols of speech, to manipulate a culture of false realities, so that they can make the best of any situation"?

And Shri Raj Narain may be saying more than what he means when he speaks of foreign language imperialism. Once English goes, may be even foreign collaboration may go and we will be self-reliant in more than one sense, provided, of course, Hindi does not make for a new kind of "expatriate" within the country

A Deserving Award

The Amnesty International has won recognition for its creditable work in the cause of human liberty and political prisoners and other prisoners of conscience. The award of the Nobel peace prize is a fitting tribute to its 16 years of work. Its President, Mr. Sean Macbride, got the Nobel peace prize in 1974 In the last seven or eight years alone it adopted over 13,000 new prisoners and got over 8,000 of them released.

The Amnesty's role in the cause of Indian democracy and rights of political prisoners should be an added reason for the warmth of Indian response to the award.

Sanjaya

The Great Democrat

CHARAN SINGH

NATION BUILDING, especially in the context of the situation obtaining in a country like India, is an arduous task. We required a Gandhi to lift us from the slough of despond and diffidence that slavery had pushed us into. We required a Sardar Patel to inspire us to unite and realise our inherent strength. Similarly, we required a Nehru to instil in us all the essential ingredients of democracy and human values.

In the glorious era of India's resurgence, each of these titanic figures has their own rightful place. Neither any dust of current controversy nor any din of later day disputations and debate can deny their claims.

Panditji played a historic role during the freedom struggle , later, he led the country for nearly 17 years as Prime Minister after independence. During each of these distinct periods, what he did mattered vitally.

This year's observance of Panditji's birth anniversary is invested with added significance. Only eight months ago, in March 1977, millions of our countrymen—illiterate, poor and afflicted by years of neglect and deprivation—almost unanimously stuck a blow against those forces which had chosen to range themselves against everything that Jawaharlal stood for. It was a vindication at once unique and without parallel The tragedy of the situation was, it was Panditji's daughter—and, therefore, one who ought to have been a legitimate heir to his great legacy—that had wantonly tried to deny the people the precious gift her illustrious father had bestowed. Indiraji proved disloyal to her great father; but the people unequivocally stood true to him.

Nehru's commitment to democratic ideals brought about in him several obvious contradictions. A confirmed socialist, he could not compromise on the question of individual rights. His association with the sophisticated urban elitism, with obvious western leanings, did not deter him from firmly implanting the concept of universal suffrage on the Indian soil. Invested with undisputed powers, he never persuaded himself either to silence opposition or to ignore differing views.

I have publicly taken the position that Panditji's social and economic policies were not in consonance with our factor endowment. Even when he was alive I had stated my opposition. But to differ with him was itself a great privilege One can quote from his own later day writings and speeches to prove that he was having second thoughts about his economic policy, which he had stoutly championed earlier

TRAGICALLY, Panditji's detractors came from those very sections which benefited from his policies Businessmen, industrialists, urban professional classes and foreign collaborators were among those who were ranged against him in his greatest hour of trial during the Chinese aggression The masses chose to stand by him and by the country.

Here is again a lesson for us all. Our loyalty to the Father of the Nation, to his heir's democratic heritage and concern for the poor should compel us not to succumb to the pressure lobbies of foreign collaboration and narrow-minded urban organised sector We should ignore these pressures and be steadfast in our resolve to serve more than eighty-five per cent of the down-trodden people living in our villages as also in our towns.

This is our best tribute to the memory of Nehru.

We are a great country, a country with enormous variety, a variety that is good There is no reason why we should be regimented and be made to look like one person We should keep the variety, but that variety is only good when we are united and there is an essential unity behind it.

JAWAHARLAL NEHRU

Master-Plan for Water Management

T. D. VAISHNAV

INDIA is a land of paradoxes. Areas which reel under drought at one time experience devastating floods at another. Both bring untold miseries to the inhabitants of the area and entail heavy recurring expenditure to meet the situation.

UNEVEN WATER DISTRIBUTION

India is neither deficient nor abundant in water resources; only their distribution over the land is uneven. This is due to the seasonal and regional uneven distribution of rainfall Most of the rainfall occurs during the 3-4 months of the monsoon season During rest of the year, it is insignificant. Regionally, the northern and eastern parts of the country receive heavy rainfall as a result of which the rivers in these areas cause flood havoc while the western and southern parts receive light and uncertain rainfall and are hence drought-prone. For example, while some of the hilly regions of Assam receive as much as 500 inches of rainfall in a year, the arid zones of Rajasthan desert get even less than 5 inches

On an average, India receives, in all, about 300 crore acre-ft. of rainfall in a year, sufficient to submerge the entire country in a 45 inch deep layer of water This is adequate to cater to the irrigational and water-supply needs of the land But this cannot be achieved unless unevenness in seasonal and regional distribution is overcome.

SOVIET AND ISRAELI EXAMPLES

We can take a cue from Israel which has made deserts bloom through development, management and optimum utilisation of its scanty water resources within a very short space of time. In U.S.S.R, the implementation of the multipurpose Volga-Dnieper canal network has completely transformed a vast tract of barren land into a virtual granary

The total area under cultivation in our country is of the order of 390 million acres out of which only 100 million acres is provided with irrigational facilities. The remaining is still at the mercy of rain. Again, out of the 100 million acres, only-two third is under assured and systematic irrigation while the rest depends on small wells, ponds and tanks, which are, if anything, highly undependable in the years of scanty rainfall.

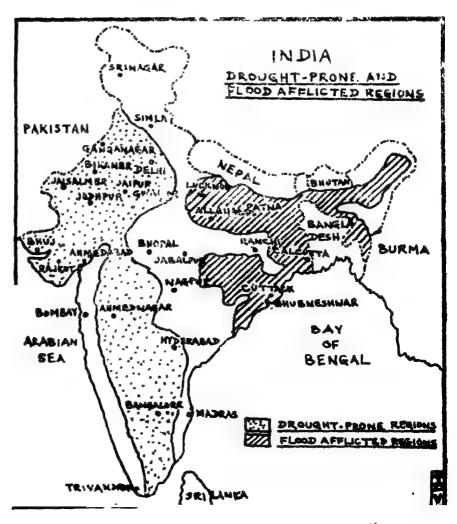
Some 88 districts of Rajasthan, Gujarat, Madhya Pradesh, Maharashtra, Andhra Pradesh, Mysore and Tamil Nadu—forming nearly one third of the country's total area—have economies that sway with the yearly vagaries of the monsoons. The percentage of irrigated land in these districts is far below the national average

It has been estimated that the total irrigation potential of the country is sufficient to provide assured irrigational facilities to more than 220 million acres.

Many parts of the country are perennially suffering from acute water scarcity while more than three-fourth of the total flow of our rivers wastefully drains into the seas without being put to any fruitful utilisation *It is this enormous quantity of unutilised water which causes havoc by inundating vast areas in the northern and eastern parts of the country, in the rainy season.* The mighty Brahmaputra's entire annual flow of 400 million acre-ft. of water runs into the Bay of Bengal.

The utilisation of the ground-water resources is equally bad. The entire useable ground-water resources of the country have an estimated annual potential of 180 million acre-ft. This quantity can fill a tank 500 miles long and 100 miles wide to a depth of 5 ft. At present not even a quarter of this is being utilised. Studies by the Geological Survey of India over the past decades have revealed that adequate quantity of ground-water could be made available in many parts of the country and used to supplement areas deficient in surface waters by digging deep bore and tube-wells.

NATIONAL WATER-GRID

It is very essential that our resources are judiciously utilised to avoid floods and droughts The proposal of a national water-grid of which the Ganga Cauvery link canal forms the first link is a step in this

work of feeder canals will be spread all over the country to transfer surplus waters from the areas of plenty to areas of scarcity. This gigantic project, when implemented in full, will not only cater to the irrigational needs of the drought-prone areas but also help ward off floods.

Another proposal recently put forth is the scheme of underground reservoirs. Under this scheme a considerable quantity of flood waters of the rivers would be stored in big-size underground reservoirs, in wet season, by means of induced percolation or artificial recharge. This stored water would then be pumped out in the dry season for water supply and irrigation purposes, thus starting a continuous cyclic operation of these tanks.

Both these proposals require a colossal amount and electric power for their implementation which could be made available by developing secondary power in the Himalayan region.

National Calamity

The twin problems of droughts and floods are national problems and should be dealt with as such. No inter-state river water disputes should be allowed to come in the way of a permanent solution to this problem. Water should be declared a national asset and there should be free inter-basin transfer of water from surplus to deficit areas. □

Rural Bias For Banking

K. RANGACHARY

IN pursuance of the present Government's objective of giving higher priority to rural development than hitherto, possibilities are being explored for reorienting the lending policies of the nationalised banks to enable them to make an impact on the rural environment.

Some time back, the Reserve Bank of India set up a committee to study the working of the public sector banks, with particular reference to their policy of expansion of branches and supply of credit to the priority and weaker sectors. The views of this committee will be of great use when the final policy decisions are taken.

In statistical terms, there has been an impressive sixfold increase in total bank lendings for agriculture and other "new priority sectors" since the nationalisation of the 14 major banks in 1969. According to latest economic survey, the share of these sectors in total bank credit has gone up from 15 per cent in 1969 to 25 per cent in 1976. However, this is not as impressive as it looks.

An evaluation by the Reserve Bank of working of the lead Bank Scheme in Maharashtra and Gujarat had shown that the lead banks were not displaying sufficient leadership or initiative in the districts in their charge. The results were uneven in particular, they were not doing enough for assisting the small and marginal farmers or agriculturists in non-irrigated or rainfed areas where crop risks were greater. Nor were they helping to promote subsidiary rural occupations in animal husbandry or processing schemes which could create incomes for the weaker sections in off season.

Structural Causes

The Congress Government's decision three years ago to set up rural banks was also an admission of this weakness of the public sector banks and of the partial failure of the primary objective of nationalisation in 1969 which was to help agriculture and rural development. The failure was attributed to structural causes which increased the costs of extending commercial bank credit to the rural sector.

The rural banks scheme is also now being reviewed and the Government may well prefer to watch their performance for some more time before taking a decision to expand or scrap them. All these illustrate the complexity of the problem of making banks a major agency for rural growth and employment.

There is also the larger question of how much credit expansion they can safely undertake and at what rates of interest in the present price situation when overall restraint is needed to prevent credit being used to finance non-productive or speculative types of activities.

The Union Finance Minister has emphasised the importance of branches on systematic lines by concentrating and by establishing at least one branch in each community development block. Today, there are over 24,000 bank branches in the country as compared to only about 8000 in 1969, of these 8000 branches are located in rural areas and another 7000 in semi-urban areas which are close to or in the midst of a group of villages.

Naturally branches cost money for staff and premises and these costs must be justified by the scale of their operations in terms of deposits and advances. Growth takes time but at least after a period of four to five years these operational costs must be covered by each branch to facilitate further expansion in new unbanked centres.

According to the last Reserve Bank annual report on currency and finance, rural bank branches, which constitute one-third of the total, had mobilised only 8 per cent of all deposits by June 1975 and had provided barely six per cent of the total volume of advances.

Needs of Agriculture Ignored

Another significant point which emerges from that report is that only 35 per cent of the advances of rural branches were given to agriculture, indicating that bank officers find it easier to evaluate non-agricultural schemes than crop-loans. It also appears that semi-urban centres often give more loans to agriculture than the rural branches themselves perhaps because this is given to the bigger landholders who offer good security and have contacts at these levels.

All these features indicate the importance of consolidating the existing branch expansion and the need for evolving new guidelines based on recent experience. It was suggested at a recent meeting that state governments should be consulted on the location of branches; one hopes that this will not lead to opening of offices merely to please influential persons even if the prospects of business in any area are not in the opinion of the banks, sufficiently promising. There should be proper yardsticks for such assessments.

Deposits mobilisation should be a major objective of banks in irrigated areas, as the farmers there grow highly profitable crops like wheat rice, sugarcane or cotton, while purposeful lending may be the main task in the less prosperous districts. Many well-to-do farmers also tend to use their own resources for crops

went up and do not need institutional credit.

Such variations in the rural banking operations suggest that there can be no rigid credit-deposit ratio applicable to all rural units, like the 60 per cent suggested at the recent meeting. This can be an overall average ratio but in particular centres it can vary between 50 and 80 per cent.

There can be little doubt that the drive for rural deposits should be intensified in areas where procurement operations and trading in surpluses are large; the additional resources so raised should be ploughed back as far as possible in the same areas in helping the weaker farmers and other poorer sections Such a policy can reduce the inflationary effects of expanded rural credit

Choice of Personnel

For all these activities bank personnel must be well chosen and trained State Governments can also do much more than they have done so far to identify appropriate schemes and areas in which banks can make a positive contribution Besides simplifying procedures, there should be sound credit planning, prompt evaluation of proposals and follow-up action to facilitate proper servicing of loans and recoveries In all these aspects of their working banks need the support of state agencies.

State and district planning authorities should commission periodical techno-economic studies of regions and sub-regions and offer banks the co-operation of their own extension

It is unfair to lay the entire blame on banks for all existing shortcomings in the absence of such support. Sometimes they have to contend with conflicting advice from the authorities On the one hand they are asked to restrict credit limits in order to control inflation and on the other to expand credit to the priority sectors, even when outstandings keep rising, especially when small units become sick or bad crops in any year make recoveries difficult Banks have shown reasonable prudence and taken initiatives in the areas they understand well, like small industries, road transport schemes, dairy and sheep farming, horticulture and so on

Role of the Co-operatives

The co-operative system still provides nearly half the present volume of institutional credit for agriculture and also substantial resources for agro-based processing units or industries like sugar mills or cotton ginning and oil crushing

The role of co-operatives is generally overlooked while putting pressure on commercial banks to do more, though co-operatives should be in a much better position to understand rural problems Many of these issues were generally avoided hitherto in the enthusiasm to show results in purely statistical terms, of branches opened and credit given to the priority sectors The present Government can adopt a fresh approach to the role of banks in an integrated strategy for rural development. □

Floods and Their Control

IN OUR COUNTRY, floods cause damage of about Rs 1500 crore every year. Sir Jesmy Raisman once observed as early as in 1945-46 when he was the Finance Member of the Viceroy's Executive Council that "India's budget is a gamble in rains" Perhaps, this is true even today When Dr. Rajendra Prasad was the President of India he said he was distressed to see the havoc and fury of the monsoon bringing in its wake incessant floods We learn from records how in the past history of our country cities and towns, rural habitations and fields with crops were devastated on innumerable occasions because of downpour, floods and resultant effects.

Floods are generally caused because of the uncontrolled pattern of our rivers and the unplanned river system of the country as a whole. Although a good beginning was made in the direction of flood control through the construction of multi-purpose dams on the major rivers, it is not adequate A lot remains to be done Ours being basically a riverine country with a civilisation along the course of rivers, we have many cities and villages founded on the river banks which suffer most from floods In Delhi the Dhansa Bundh was designed both as a barrier and a controlling channel against the inflow of rain water into the Jamuna river. But this year the rains causing damage to more than 200 villages.

Besides Delhi, several states like Haryana, Rajasthan, Gujarat, Uttar Pradesh, Bihar, West Bengal, Orissa and Assam were affected by the floods of the current season causing great damage.

Grid Scheme

Some time back our engineers had put forward an ambitious project for forming a national water grid by interlinking the various major rivers of the country in order to transfer surplus flow of water from one basin to another not only to harness the flood waters for productive use but also to provide cheap intra-country navigation to carry goods or passengers economically The Central Water and Power Commission recently drew up a proposal of linking up the Brahmaputra, the Ganga, and the Cauvery in the for south connecting en route the basins of Narmada, Tapti, Godavari, Krishna and Pennar The same proposal also comprises other plans for linking up the rivers of the Western Ghats with those of the Eastern Ghats and also for a canal system connecting Chambal in Rajasthan and the Narmada in Gujarat Dr. K L Rao, the then Union Minister for Irrigation and Power took a lot of initiative in this matter This scheme, if accomplished, would not only give a big push to the efforts to modernise the agrarian economy but convert the country into a granary of the world. And as a natural corollary afforestation of large areas would take place which in turn would give a big boost to the economy in all possible ways

Flood Control

The bulk of the average flow of waters in India has been estimated at about 1360 million acre ft. The Brahmaputra and Ganga rivers contribute the bulk of these flows. After the disastrous floods of 1954, the national flood control programme was launched and during the last twentytwo years a large number of flood protection works have been implemented with an outlay of nearly Rs. 445 crore

Important works completed till now comprise mainly storage reservoirs, embankments, diversion works, town protection works, river improvement and anti-erosion and drainage improvement. This has

greatly benefited the people living in an area of 8.5 million hectares; affording permanent protection to cattle and other domestic animals, men and women, dwelling houses, small industries and factories. But in a large country like ours fresh outlays are required to give relief and to foster the growth of rural economy in 20 million hectares of flood affected areas. As the monsoon differs from region to region in the country, flooding of rivers, drainage congestions and bank erosion cause a number of problems, social and economic. These have to be tackled effectively as part of a comprehensive plan. For this, the river system has been divided into four regions: (i) Brahamaputra region (ii) Ganga region (iii) North West region and (iv) Central India and Deccan region.

Several recommendations made by several high level committees set up by the Government are being implemented When completed these measures may save the country permanently from havoc of floods □

Idea of a Teacher

MURIEL WASI

INFLUENCE IS a bad word today. When there is no way to get a good thing done by normally accepted procedure, it helps to approach a friend of a friend of a friend for it So deeply rooted is the general faith in the superior effectiveness of influence over proved ability, that one begins to suspect every new acquaintance who sidles up to one, of contriving to know one for a purpose

The one comfort about all this is that it is not peculiarly Indian It happens all over the world But the expertise that we have acquired in identifying the source of influence and manipulating it would put the rest of the world to shame

A friend who has come round to see me at stated intervals in the last five years has not failed regularly to ask after my health in a concerned way But he has not left without asking for the exercise of what he calls my 'influence' on each occasion.

The fact that his interest in his son's future is natural and that his son has not yet won a scholarship abroad is distressing to both father and son, does nothing jointly to make me more sympathetic to the exercise of the sort of influence that is now assumed to be our normal way of life

And yet what an incredibly valuable thing influence can be ! We celebrate teachers' day once a year to make sure that the teacher *qua* teacher will be remembered But I don't think that a genuine teacher ever runs the smallest risk of being forgotten.

KNOWLEDGE PLUS

Somewhere in *A Passage to India*, Fielding, the principal of government college, Chandrapore, says · "I believe in teaching people to be individuals and to understand other individuals. It's the only thing I do believe in At government college I mix it up with trigonometry and so on"

And this is probably the heart of a genuine teacher's influence He or she teaches trigonometry, algebra, chemistry, philosophy, modern languages, mathematics, anthropology, economics and literature but some part of his work, and perhaps the most enduring part, has little concern with any or all these subjects.

We have reacted strongly in recent years against the teacher's obligation to form 'character' partly because so many amiable incompetents have assumed that even where they do not have a grasp of their subject-fields, they can get by with good teacher-student relations The other superstition that has required to be laid is that if you are ingenious about methodology you can be remembered as a good teacher even where you provide no evidence of scholarship

Between the Scylla of amiable incompetence, and the Charybdis of muddled methodology many honest teachers have decided to stand just for professional expertise 'I teach my field, or a part of it', they say doggedly, and this insistence on knowledge would be upheld by all their serious students.

The ability to communicate is not unknown to flow directly from knowledge of a field and so the notion that methodology is a panacea for poor teaching at college level should have been exploded a long time ago.

Most of us nevertheless concede today that Fielding was generally right. The teacher, the genuine teacher that is, and not what passes for one in many of our schools and colleges, always intends to give his or her students more than a knowledge of the subject-field.

Professional ability is of the first importance, but it is not enough, because professional ability, as a recent film on the Harvard Law School—it was called 'Paperchase'—so vividly demonstrated, can be wholly impersonal. At the end of the course, the law students who have survived its rigours, burst into spontaneous applause that the professor richly deserves because he is professionally outstanding But he knows not one of them as a human being and they are no nearer knowing him The film is a curious commentary on the triumph and failure of teaching over a considerable period of university time

The teacher who will be remembered a million times and not just on September 5, each year is a competent physicist or economist or linguistician or master of literature-- and that is an integral part of his or her influence, for professional expertise is not so common that it can be taken for granted But when all this has been totted up, there will be quite other things for which his influence survives among his students · it will be, perhaps, as it was for G E Moore, the celebrated Cambridge philosopher, that he was so strikingly pure, his integrity was saintlike Or, in quite a different direction, he/she was the person who always knew when there was something dreadfully troublesome in my life that I could not of myself overcome Without seeming to interfere, he/she put things right

ENDURING INFLUENCE

There is a rather sentimental, but still moving novel on a school teacher, called *Good Morning Miss Dove*, that presents such a teacher Here, we have a wholly acceptable portrait of a small town American teacher who knows her society inside out, knows her children, gauges their ability and plans to the extent she can for their future

She remains in the town—Liberty Hill, it is called—and becomes a focal point in it. She is quiet, retiring, unassertive, but deeply characterful and her influence radiates through the town in currents of enduring effectiveness that must bring her great satisfaction

It is not unusual to overhear our students say : when we needed to go down and get jobs to prove our-

selves, to confirm our independence, this and this was the teacher who helped. First, he gave me the right sort of testimonial to get me into the right sort of advanced institution of learning and then he helped to guide me on the job I should go for and then—yes—he helped to prepare me for the job.

And our students add : they did all this because they knew their field and could illuminate their field for us. They taught us how to learn for outselves and so they must have been competent in communication though they carried no diploma in methodology ; but if we remember them today it is for the other things that made their lives part of ours. Their influence invaded us because they knew us and they *Cared For Us.*

And so they continue, though dying or dead, to be with us. The teacher's epitaph should always—but always—be written by his students for they are the best judges of whether the teacher's influence has been transmitted so as to become part of the living. If so, the teacher has had his reward ; he will be remembered

PEOPLE'S PLAN - II

Approaches are Wrong

Dr Harihar Bhakta

PLANNING TRIES to accelerate a continuing development process by utilising existing resources to the maximum and finding new resources. While present resources may be scarce, choices of using them are many. The strategy of planning lies in assigning priorities of investments and efficient mobilisation of resources in the context of the problems facing the economy

The economy is now facing the twin problems of inflation and unemployment Besides, socialism has been accepted as the goal of development. It is on this context, with the advent of the Janata Party government at the centre, that People's Plan II—a developmental perspective plan for twenty years and indicative plan for ten years—prepared by a non-official organisation, namely, the Indian Renaissance Institute, has to be initially analysed People's Plan II is designed with priorities for development of agriculture and small industries, employment-oriented investments and a check on further rise in prices. Besides, investment priorities have been assigned to adequate input infrastructure, supplies of primary consumption goods and improvements in general welfare facilities like health, education and housing

Inflation is a feature of uncontrolled or partially controlled market economy. It results from imbalances in the economy like cash income and expenditure in the development of various sectors of the economy. Sometimes the creation of artificial scarcity of goods is also responsible for inflation. For this, People's Plan II emphasises an increase in the production of consumer goods through development of agriculture and small industries This is not as simple as it may seem.

Not by Investments Alone

For the development of agriculture and small industry allocation of larger resources has been suggested But our experience shows that investments alone do not bring about the desired result. Even benefits of development are not distributed in favour of the weaker sections of society. Therefore, the constraints of development must be looked into. We all know that concentration of ownership of land in a few hands and depriving the tillers of land ownership have been one of the major obstacles in the path of agricultural development. Consolidation of land holdings is said to be an important step conducive for development potentialities In the past, we have failed to solve this problem in spite of our best efforts. This aspect of the problem has been ignored in the plan. Besides, Indian agriculture is still a way of life rather than a business enterprise. Subsistence economy persists. Commodity money production has not emerged fully. This constraint has also not been taken into consideration.

Small industries are labour intensive having a short gestation period Hence, its development will solve the twin problem of unemployment and inflation But government initiative dries up sooner or later. Investments made do not bring fruitful results. Khadi products are surviving only under state protection Products of small industries fail to compete with those of large industries. Therefore, the competitive capacity of small industries will have to be developed through appropriate technology and through protected market. The problem of artificial scarcity of goods can be solved if the state enters the consumer goods on a large scale and strictly control private trading. The public distribution system should cover even remote villages.

In Backward Gear

People's Plan II emphasises labour intensive investments for creating employment opportunities. How has the problem of unemployment arisen? Keynesian diagnosis is deficiency of effective demand. In our economy effective demand is already high It is also said that the use of capital intensive techniques render persons unemployed. But our economy is at a very low level of technology. Agriculture is at a still lower level where the problem of unemployment and underemployment is acute. Thus, unemployment is the result of general backwardness of the economy Its solution lies in lifting the economy. It requires technological development, development of means of production, and productive forces. Corresponding to this socio-economic set-up, relations of production must develop. It requires capitalist development, oriented towards the strengthening of the socialist sector. This will lead to faster development of technology and economy and create more employment opportunities. Labour intensive technique will be a step in backward gear

The framers of People's Plan II, over-shadowed by the problems of unemployment and labour surplus economy, overlooked the constraint arising from scarcity of skilled labourers and managerial and specialised personnel. Sometimes, shortage of skills and experience is serious cause of bottlenecks in the development of the economy. Also manpower balances, that is, requirements and availability, in the economy have not been determined. All this should be done sectorwise, branchwise and also according to trades and qualifications. In the absence of such estimates, solution to the problem of unemployment will be only a far cry.

Socialist Sector Undermined

In the plan the state sector has been increasingly involved only with the provision of services and public utilities and has relatively less to do with industrial growth. Both the state and private sectors have

been given the opportunity to operate, in almost all the sectors like agriculture, industry—large and small and construction Even electricity has not been reserved for state sector exclusively. As regards resource mobilisation during ten year plan period, total tax revenues are over three times more than the total surplus of government enterprises In large industries, private investments are placed higher than government investments. In other sectors private investments are almost at par with the government investments All this shows a trend to undermine the socialist sector.

Thus, it seems that People's Plan II has been prepared on the basis of implicit assumption that economic development takes place in aimless socio-economic vacuum. It has failed to take account of the historical conditions whose importance is all the more in sectors like agriculture and small industries, particularly in the economically backward countries. Socialism as the goal of development has been overlooked The basic causes of inflation and unemployment have not been taken into consideration It does not provide an alternative progressive approach and framework to the Planning Commission document

COAL RESOURCES

Conservation : Why and How ?

A. R. PATEL

INDIA'S energy problem will have to be studied in the context of the 75 per cent of the people living in villages and the availability of commercial and non-commercial sources of energy, more particularly coal The rural population is expected to grow from around 440 million in 1971 to about 800 million by the end of the century Therefore, we shall have to pay attention largely to meeting the growing demand of energy for the rural and agricultural sectors in addition to that required for developing our efficient transport system and industry.

The commercial sources of energy are coal, oil and natural gas, hydro-electric power and nuclear fuels. The non-commercial sources of energy (it is so termed because much of this is not ordinarily bought or sold at any rate in recorded transactions), are the forest sources (which provide considerable volume of firewood and charcoal consumption), vegetable wastes (chiefly consisting of crop-residues) and dried cow dung.

According to the fuel policy committee report (1974) the consumption of commercial and non-commercial energy for the whole of India for the period, 1960-61, 1965-66 and 1970-71 was as under :

Source	1960-61	1965-66	1970-71
Coal in million tonnes	47 1	64 2	71 1
Oil in million tonnes	6 75	9 94	14 95
Electricity in billion Kwh	16 9	30 6	48 7
Firewood in million tonnes	101 04	111 82	122 75
Cowdung in million tonnes	55 38	61 28	67 28
Vegetable wastes in million tonnes	31 08	34 41	37 77

During the year 1975-76, as in the past years, oil generated the highest quantum of energy in India According to official sources, the proportion of energy derived from oil was 30 5 per cent followed by firewood (26 5 per cent). Other sources of energy included coal (21 per cent), hydel and nuclear power (eight per cent) vegetable wastes (eight per cent) and cow dung (six per cent)

Our import bill for oil and petroleum products increased from Rs 194 crore in 1971-72 to Rs 1,245 crore in 1975-76 Crude imports were about 14 m tonnes and petroleum products 2 75 m tonnes in 1975-76 The oil economy plan for 1976-77 provided for an import of about 13 5 m tonnes of crude oil and 2 1 m tonnes of petroleum products, together valued at about Rs 1,300 crore The crude is being imported from Iran, Iraq, Saudi Arabia and the United Arab Emirates The import of petroleum products is mainly from the U S S R Various estimates have placed the demand for oil by the end of the Fifth Plan (1978-79) as ranging from 28 to 30 m tonnes With an annual target of 14 m. tonnes by 1978-79 the country will be able to meet 50 per cent of the oil demand from indigenous production compared to the present 35 per cent.

Along with scientific methods of washing coal, coal gasification and the development of the fluidised bed technology could lead to wider use of the low grade coal An attempt has to be made to leave as little of this valuable commodity in the ground as possible. As part of the energy conservation programme, oil refining technology has to be improved so that it would result in the production of various kinds of petroleum products in such proportions as may be required by the economy

DIVERSIFIED USES

Oil is becoming costly and we cannot afford to continue wasting our foreign exchange on import Coal has been regarded as the primary source of energy in the wake of the rise in crude oil prices Coal is the most important mineral produced in India It accounted for 79 per cent of the total value of all minerals in 1975 With the present production of about 100 m. tonnes India is the sixth largest producer of coal in the world The industry has now been poised for new breakthroughs not only by exploring and exploiting new mines with the latest available equipment but also by finding new users of and uses for coal as in oil extraction and production of fertilisers Coal is also a raw material for synthetic rubber, nyl[illegible] and plastics, insecticides, dyes, tar and refrigerants like carbon-dioxide and ammonia. The coal industry employs a labour force of over six lakhs

The fifth plan target of coal output is 124 m tonnes The estimated demand for coal by various categories of consumers by the end

Sector	1975-76 (Actual)	1978-79 (estimated)
1 Coking coal (steel washery coking plant)	20 08	27 0
2 Blendable coal	0 88	1 70
3 Power	23 04	35 50
4 Railways	14 30	13 50
5 Brick	3 34	1 50
6 Cement	4 44	5 10
7 Fertilisers	—	3 10
8 Export	0 44	2 50
7 Other Industries	18 77	23 00
10 Colliery consumption	3 00	[illegible] 00
Total	88 29	123 90

of the fifth plan is as given in the previous table.

The nationalised coal sector represents a capital investment of over Rs. 650 crore. Over 440 mines are in operation and the industry has an annual turnover of about Rs 600 crore. Since nationalisation, more than Rs. 300 crore has been invested in this industry and by 1978-79 another Rs. 800 to Rs. 1,000 crore is expected to be invested.

As the prime coking coal resources may get exhausted in about 40 years or so and the medium coking coal a little later, efforts will have to be made from now on to conserve coking coal and use it efficiently.

MODERNISATION OF TECHNIQUES

Energy conservation is necessary from another point of view also Large capital is invested in producing energy and capital is scarce Further, our coal resources, though fairly large (85000 m tonnes) are only about 1 5 per cent of the world deposits, while our population is about 17 per cent The long term view, therefore, points to the need of using the coal resources carefully

One of the conservation steps to be taken is modernisation of techniques for coal exploration. The present coal recovery is only 55 per cent Consistent with environmental protection, attempts have to be made to achieve a higher recovery. This is an area which calls for intensive research and development. The larger part of our coal deposits are of low grade with high ash content. Concerted efforts have to be made to develop techniques by which the ash content can be reduced This will also cut down transportation and utilisation costs.

HIGHER THERMAL EFFICIENCY

A significant percentage of the total coal mined would be converted into electrical energy in the years to come. The efficiency of conversion would determine the quantities of coal consumed Modern thermal plants working at high temperatures and pressures have increased thermal efficiency to about 40 per cent. The older plants have a much lower efficiency. In future, we have to use steam parameters which are consistent with higher thermal efficiency as well as the reliability of the boiler itself.

Again, there is a substantial amount of waste heat in the thermal power plants. Wherever possible, attempts should be made to use this waste heat. While there is not much

IGNORAMAN
Wants to know if doing "immoral and improper" actions is the role of the "pace-setter service".

scope in India for using this heat for space heating, it may be possible to use the heat for running cold storages and driers for farm products This also calls for intensive research and development Many industries like paper and sugar have boilers for generating steam for their process needs Often power is generated in these industries as a byeproduct of the production of process steam However, since these boilers work at low pressure and temperatures, their thermal efficiency is not high In future, it would be desirable that such boilers are designed for high pressure and temperatures so that with the same fuel consumption, it would be possible to generate large quantities of power and thereby improve efficiency as well as conserve fuel

The transmission and distribution of electrical energy is accompanied by a certain loss In India, this loss is 20 per cent, which is exceedingly high Attempts to minimise this loss by installing capacitors and improving system conditions are being made. However, the problem of loss connected with rural electrification need to be studied in greater depth and solutions should be sought.

CHOICE OF FUEL

The transport of coal is mainly by rail, though some despatches are by road as well as by sea The net energy transported after taking into account the energy spent in transporting needs to be considered. In some areas the balance may be negligible. An awareness of the cost in terms of energy spent in transportation of energy would be useful in determining the policy and choice of fuel to be used in different parts of the country

An expert group has recommended the establishment of a 'coal-to-oil' project as a precursor to the development of coal-to-hydrocarbon based on chemical technology. The group has suggested Raniganj in West Bengal and Singrauli in Uttar Pradesh as ideal sites for the project. The total capital cost of each plant is estimated at Rs. 701 crore with a foreign exchange component of Rs. 149 80 crore The group has suggested that the project should be taken up in two stages, each corresponding to half the proposed capacity of one million tonnes It will consume about six million tonnes of coal to produce one million tonnes of crude.

ECONOMICS OF SYNTHETIC OIL PLANT

Raniganj has been chosen for the first plant owing to a number of factors favourable to the location, chiefly the fact that the area has adequate proven preserves of coal to sustain a synthetic oil plant and good infra-structural facilities. An analysis of the economic cost calculation of the project reveals that such a plant can stand on its own With an investment of Rs. 635 crore for a million tonne synthetic oil plant, the economic cost of production would be about Rs. 809 per tonne. In this, the economic cost of coal has been assumed at Rs 63 a tonne Against this the economic cost of imported crude based on the prices ruling in January this year was about Rs 909 a tonne. The projected international oil prices for 1982 is $ 144 a tonnes. Assuming a proportionate increase in coal prices, the cost of synthetic crude would be about Rs. 1,400 a tonne India's coal reserves are estimated at over 85,000 million tonnes though these are not evenly distributed. According to the fuel policy committee's recommendations government has decided to regard coal as the prime source of energy. Coal is available to the consumer at one-third the price of the oil. Despite India's recent success in tapping under sea oil and the expectations of self-sufficiency in mid-eighties, coal will remain the principal source of energy for the country of India's size and requirements. Hence the urgency of steps to conserve it and use it prudently. □

Integrated Rural Development

M. PALANISAMI

MANY of our developmental inputs did not yield a return commensurate with the cost and effort involved for want of cooperation and coordination in sufficient measure and for lack of inbuilt feed-back system. Even where cooperation was ensured, it was not effective. Besides, some of the schemes were launched all of a sudden country-wide without their being tried on a pilot basis.

Since more than 70 per cent of India's population is engaged in agriculture and about half of our national income is derived from it, a major plan outlay should deliberately be allotted, in our annual plans, to the development of agriculture and improving the economic conditions of those who are engaged in it. Accordingly, of the total plan outlay for the year 1977-78, 30.4 per cent is earmarked for agriculture and allied services. In spite of a record harvest of 120.8 million tonnes of foodgrain in 1975-76 and a present stock-pile of 21 million tonnes, the prospect for agricultural growth does not seem to be so bright as to generate surplus in future years. Nor is it so bleak as to dismay effort and planning.

STEADY GROWTH IN FARM OUTPUT

For a balanced growth in villages through integrated rural development programmes, agricultural growth rate should be steady. We have more than enough manpower to deploy in agriculture and allied activities. Other inputs like water, power and fertilizer, though available in some measure, are not adequate and, therefore, have to be harnessed or increased. Fertiliser needs are likely to be met but water and power pose problems. We experience floods and droughts alternatively and simultaneously in our country. By scientific management of water, the adaptability of agriculture to these extreme conditions can be enhanced. Hardly one fourth of our nation's water is used for irrigation. The rest has to be harnessed scientifically. Along with it, the available ground water potential is to be exploited to the maximum possible extent to supplement flow-irrigation. It is estimated that not even 50 per cent of the available ground water has been harnessed for irrigation and, as a result, of the total irrigated area, only 30 per cent is covered by ground water. If the national water grids linking major rivers, whose water is drained wastefully into the sea and whose spate creates irretrievable calamities almost every year, materialise, as being thought of now, it would prove to be a boon to agriculture, beat unemployment and boost the economy. By exploiting the ground water potential and providing pumpsets for viable wells, the regions, which are not accessible by rivers or canals, can be assured of irrigation facilities. The fact that about 45 million hectares are under irrigation against a cultivated area of 152 million hectares forecasts the immense responsibility India has to make assured irrigation facilities to the entire cultivated area a possibility

Of the total power consumption in India, the rural share is about one-sixth. More than 2 lakh villages have been electrified against the total of 5.76 lakh villages With the electrification of 81,000 additional villages proposed in the fifth plan, the percentage of village electrification will be increased to 41. More than three million pumpsets have been energized. This figure will cross 3.7 million if the fifth plan target is achieved

POWER NEEDS

Power consumption per unit of land is relatively very low in India The power input in agriculture is 0.4 hp per hectare whereas in Japan it is three to five h.p. and in many of the European countries two to four h.p. Our energy requirement in 1979 is estimated at 1,30,000 mkwh. The installed capacity required to generate this energy will be 33 mkw. There are seasonal variations in power generation owing to the fact that many of the reservoirs where our hydel projects are located have low water levels during summer Load shedding and power-cuts are resorted to and agricultural and industrial production is paralysed. Unless alternative source of energy is found out, there will not be any solution to the shortage of power. Efforts to seek a permanent solution to power problems should not be lost sight of, in view of the likely increase in the number of pumpsets and small rural industries in future.

It is not enough if the basic infrastructure for the development of agriculture as a component of rural development, is alone provided. The farmer for whom our programmes are meant is the pivot of development. Understanding him, his farm, his problems and the varying agroclimatic and social conditions under which he functions for his welfare and the welfare of the society, would help the programme implementers evolve a *modus operandi* by which his participation in the programme can be sought. As there are small and marginal farmers, owner and tenant farmers, and tribal farmers practising shifting cultivation, a suitable development strategy should be evolved for each category to ensure better programme participation. This need was felt in the later sixties by our planners and as a result three agencies, namely, small farmers development agency (SFDA), agency for marginal farmers and agricultural labourers (MFAL) and tribal development agency (TDA) came into being. The objectives of these agencies are more or less same. Briefly they are : to identify the problems of the farmers, prepare appropriate programmes to help them get adequate inputs, services, and credit, find for them supplementary sources of income and evaluate the progress from time to time. At present the coverage of these agencies in terms of population is low. If they are revamped with sound organisation and wider coverage they would definitely accelerate rural development with the full co-operation and participation of their clientele better than the community development and extension services launched in 1952.

RURAL INDUSTRIES

Many rural areas do not have basic infrastructure facilities essential for the growth of small industries The problem of identifying and motivating local entrepreneurs and helping them select suitable product line looms large, as the aptitude to take up a new economic activity and the capacity to bear risks involved in pursuing such activity are relatively low among the culture-oriented and tradition-bound ruralties. Along with it, the difficulties involved in marketing, which the existing units are suffering from, acts as a negative factor in the development of industries and, still worse is the fact that it inhibits even the willing entrepreneurs from taking up industrial ventures Against this background, government has to evolve ways and means to foster industrial growth in areas where the people are totally strangers to that

new activity.

A centrally sponsored scheme—rural industries projects (RIP) was initiated in 1962-63 with the main objective of developing and promoting rural entrepreneurship and identifying potential growth centres, which have the necessary wherewithal for the growth of small industries. In addition to 49 rural industrial projects initially started, 62 new projects were to be included in the fifth plan. These projects have helped more than 24,000 new units to come up and helped about 23,700 existing units to expand further. It is a matter for gratification that more than two lakh people have been given jobs in these new and existing units. RIP covers some selected places in selected districts. After it is ascertained that RIP performs well and strives to achieve its objectives, its coverage can be extended to all the economically backward areas. Once the 'risk-fear' in the minds of the prospective entrepreneurs is reduced, local skill and talent would manifest spontaneously in the form of goods and services.

In all these our steps should be measured so that we do not commit the same mistakes as we did earlier in programme formulation and implementation. Priority should be given to the basic minimum infrastructure needed for further development in the villages. The solution lies not only in the growth of agriculture and industries, in decentralisation of official machinery and delegation of power to the local self-Governments but also in the dispersal of government offices and health and educational institutions to the rural areas This should be done in a phased manner. This would avoid concentration of people in towns and cities, curb migration to town and alleviate urban misery and rural poverty alike □

New Food Policy

Chetan Chaddha

WITH the lifting of all restrictions on the inter-state movement of paddy and rice from October 1, the era of movement controls on foodgrains will come to an end. This decision of the central government, announced as part of the new *kharif* policy, comes as a logical corollary to the similar policy adopted in respect of wheat since April this year. The movement of coarse grains has already been free for quite some time. Barring in 1974-75, when the curbs on wheat movement on private account were lifted, zonal restrictions on the movement of paddy, rice and wheat have been the hallmark of the government's food management policy in recent years. Now, after a long time, the entire country will become a single zone in respect of all foodgrains.

The simple logic of the zonal system was to cordon off surplus and deficit areas to facilitate mopping up of the surpluses and to maximise procurement. Thus each state became a zone and inter-state trade in foodgrains could take place only on a government-to-government basis. There have, however, been at times some adjustments here and there in the demarcation of zones. For instance, a larger rice zone in the south was formed last year which included Tamilnadu, Andhra Pradesh and Karnataka. Similarly, in the north we had a composite wheat zone at one time

All these zonal barriers will now disappear. We do not need them any more because, for the first time, the stocks of foodgrains with public agencies have reached a level where the imperative of maximising procurement no longer exists The highest closing stocks in the past were of the order of 7.88 million tones at the end of 1971. But at the end of 1977, the closing stocks were at the record level of 19.93 million tonnes. Expert studies have shown that the maximum amount of stocks that the country needs to hold to meet the current needs of the public distribution system and to guard against crop failures for two successive years should not be more than 18 million tonnes. Buffer stocking is a costly operation and, as it is, more than 2,000 core of rupees of bank finance is locked up in foodgrains stocks

Buoyancy in Prices

It is, therefore, in the fitness of things that the government has decided to lift all curbs on grain movement and, as a consequence of it, not to fix any specific procurement targets for wheat or rice or other foodgrains. Public agencies would, however, still continue to procure foodgrains to replenish the existing stocks and to provide price support to farmers in the event of the prices in the surplus areas tending to crash. The removal of zonal restrictions and the freedom to the private trade to handle grain distribution from surplus to deficit areas should also provide a measure of buoyancy in prices in surplus areas, while leading to a reduction in the open market prices in deficit areas through larger flows of grains.

Procurement has to continue

With the huge grain stocks in its hands, the government is in a position to meet any manipulations on the part of private traders to create artificial scarcity. At the same time, public procurement agencies are there to prevent any undue depression in grain prices. It is noteworthy in this context that, despite the free hand given to the private trade in wheat distribution in April this year, the total procurement of wheat by public agencies has alredy reached more than five tonnes against 6.5 million tonnes last year It is hoped that rice procurement may also come to three to four million tonnes. This order of procurement through a levy on the millers may be necessary to replace the existing stocks of rice. Last year 3 6 million tonnes of rice was issued through the public distribution system. Even if the demand of the public distribution system somewhat comes down because of the lifting of zonal curbs, the government may have to procure about three million tonnes to maintain the existing level of the rice stocks.

Price Policy

As in the case of wheat, the government has agreed to only a marginal increase in the procurement price of rice. While the wheat price was raised from 105 rupees a quintal to 110 rupees a quintal, the paddy procurement price has been raised from 74 rupees a quintal to 77 rupees a quital, as recommended by the Agricultural Prices Commission. A majority of the state chief Ministers and food ministers who met the union agriculture minister, Shri Surjit Singh Barnala pleaded for a higher paddy price ranging, from 84 to 100 rupees a quintal They also wanted the incentive bonus on procurement to continue But these demands do not fit into the overall objectives of a national policy, which has to take into account the existing stock and storage position as also the general price situation in the country. Even while granting increases in the procurement prices of wheat and rice, the government has decided to maintain the existing issue prices of foodgrains at fair price shops If the procurement prices are raised subs-

tantially, not only will the open market prices tend to rise correspondingly, but it will be difficult to maintain the existing issue prices wihout involving a much higher subsidy and the consequent constraints on the whole economy.

The government has decided not to change the existing procurement prices for coarse grains. But for gram, a major pulses crop, it has made a good gesture by raising the support price from 95 to 125 rupees a quintal. This is intended to induce farmers to grow more of gram by bringing additional area under grain cultivation. In conclusion, one can say that the country has entered a new phase of food self-sufficiency where imports are practically stopped, grain movement is free and the public agencies have a comfortable stock position. A special responsibility now develoves on private traders to maintain this healthy trend by eschewing hoarding and profiteering. Otherwise the government does have the wherewithal to deal with them. □

CURBING POPULATION GROWTH

Just Raising Age of Marriage Will Not Do

M. N. SRINIVAS

SHRI RAJ NARAIN, Union Minister for Health and Family Welfare, recently announced that the Cabinet had aproved of a proposal to raise the minimum age of mariage to 21 years for men and to 18 years for women and that this should be given legal shape soon. This decision should be welcomed as an onus of the government's intention to take up family planning seriously.

As every one is aware the compulsory sterilisation of large numbers of males and females, including sometimes the very old and the very young during the Emergency, produced such a severe backlash particularly in north India that the Janata government had to go slow on family planning for a while.

However, the need to bring down rapidly the rate of population growth is urgent and the relative inactivity on the family planing front during the last several months has only added to the urgency.

It is in this context that the proposal to raise, through legislation, the minimum age of marriage for men and women has to be viewed. It may be added that it is not a new proposal. Indeed, it has been, as they say, on the anvil for the last ten years or so and what the Janata government has done is to give effect to the thinking of the last ten years. This is not said, however, to lessen the significance of the Janata government's decision.

IMPACT ON POPULATION GROWTH

According to the 1971 Census estimate the mean age for marriage for men was 22.4 years while for women it was 17.1.

The corresponding figures for 1961 were 21.6 for men and 15.9 for women But these overall figures conceal significant rural urban differences. Then again according to the 1971 census the mean age for marriage for women was 19.1 in urban areas and 16.5 in rural areas.

The mean age for girls in rural areas is thus 1.5 years less than the minimum age prescribed under the proposed Act. The mean age for marriage for rural girls, namely 16 5 years is higher than the current minimum age as distinguished from that proposed in the new legislation

It is safe to assume that the marriage age will have to be raised by two years or more to reach the legal floor of 18 years. Will the government be able to do it? That is the crucial question. It may be added that the proposed minimum age for men as the current minimum age is very close to, if not a little higher than, that proposed.

It however, the government is able to enforce this measure and that it will not be merely a symbolic gesture like the prevention of Dowry Act, How effective will it be in lowering the rate of population growth ? The period of high fertility among women is from 20 to 29, especially 25—29. But the present legislations is incapable of making a dent in it If the new minimum age comes into force it may be assumed that women at marriage will be in better health. Given better maternal and child care in rural areas, more mothers and infants will survive. This is good. But it will add to the rate of population growth.

Let me now turn to the enforcement aspect of the proposed law. It is notorious that birth statistics in our country are unreliable. Unless steps are taken to have universal compulsory registration of birth especially in villages how can prosecutions be made of violators or rather how can the violators be indentified ?

The registration of marriages is also necessary, as, otherwise, government officials may not come to know of marriages especially among the weaker sections of the population. The possibility that corrupt officials may harass poor and innocent villagers who are ignorant of this law, is not also ruled out.

One would also like to know what the government proposes to do by way of selling the new law to the people.

Presumably mass media will be used. But how will the government be able to convince villagers that it is better for girls to marry at 18 instead of at 15? The villagers might reject the increased age on the ground that it leads to immorality. Has any thought been given to educate rural folk in this matter? Alongside the legislation certain other steps are essential if the rate of population growth has to be brought down

GIVING WOMEN POSITION

The first and the most important of such measure would be to find employment outside the home for all able-bodied rural women or at least for as many as possible Further, if such employment is of a continuous nature, rural women might become career-minded like their urban sisters. And even the husband might start appreciating the contribution they make to the family kitty.

Women should be organised in unions and co-operatives in order to enable them to deal with their menfolk for a position of strength It goes without saying that creche and other facilities must be made available in villages.

Education especially for the rural areas must be linked to employment, particularly self-employment.

With women's employment, more purposive education and better health facilities, the immediate result might actually be to put up the rate of population growth but very soon rural people will begin to appreciate the advantages of having small family.

Yojana Quiz

1. Does a bird always sing the same song ?
2. Why does a snake coil up to sleep ?
3. Do we always wake when we have had as much sleep as we want ?
4. Why does iron feel colder than wood ?
5. Is smell a wave in the air ?
6. Why do motor-cars have numbers ?
7. What is Dead Men's Fingers ?
8. A male brain has an average weight of 49½ oz What is the average weight of the brain of a female ?

ANSWERS

1 It is sure that various kinds of birds have various kinds of songs of their own, but a study of other living creatures shows that individuals differ as we do. It has been noticed that certain kinds of birds change their song as the year advances. The tune is not quite the same in early spring as in summer. 2. Partly to an old primitive instinct that if the animal makes itself small when it is asleep it is less easily noticed and is not so open to attack. Another reason is that there is probably more relaxation of the muscles in the curled up position, so that is more comfortable. 3. The waking is the proper fruit of the sleep. A child could not sleep too long, because directly sleep has done its work the brain must wake ; that is what sleep is for. 4. Our feeling entirely depends on the rate at which the thing takes heat from our fingers. Marble and iron take heat quickly from our fingers, they quickly make our fingers cold, meaning really they make us cold. But wood and cotton do not take heat away nearly so quickly from anything warmer than themselves, and so we feel they are not so cold 5. Smell is not a wave in the air, they are called contact senses. They are due to actual touching of the tongue or part of the nose by particles of certain kinds 6. Motor-cars have numbers on them for purposes of identification. 7. Dead Men's Fingers or Alcyonium digitatum is a common marine animal of the coelenterate order Alcyonacea, sub-class Alcyonarea, class Anthozoa found in deep and shallow waters on European coasts 8 The female brain is about five ounces less than the male brain

Quotation Box

I believe that when democracy is at stake, the utmost firmness should be shown.

—Raymond Barre

—French Prime Minister

* *

***It is no good trying to make* things compulsory. It is in the nature of man that even if it is a good thing and you *try to force it* on him, he will revolt.**

—Morarji Desai

* *

A politician without credibility is as effective as a jockey without a horse.

—Civil Smith

British M.P.

* *

The first land reforms made my hair grey. I do not want to go bald.

* *

You think I govern this country. I govern it only 20 per cent. The bureaucracy runs the 80 per cent.

—Z. A. Bhutto

* *

Education is supposed to solve problems—but in this world of unreal expectations and bloated self-images, education is the instigator of unreality.

—David Nevin

* *

The citizens of a healthy society are people who care for others and look first to themselves to care for themselves.

—Mrs Thatcher

* *

Arabs propose but Israel disposes.

—The Economist

BOOKS

Nehru and Growth of Economy in Socialism

Dr V S. Motial

IN THE silver jubilee year of India's independence it has been thought fit to evaluate the growth of Indian economy in socialism and to expound and examine Jawaharlal Nehru's economic ideology and philosophy of democratic socialism, both in retrospect and prospect. Prof. Adarkar, in his foreword to the book "Growth of Indian Economy in Socialism" has remarked : He (Shri Nehru) was a visionary and often his ideas and actions lacked pragmatism and the finesse which is often essential in handling international issues However, there was no doubt that he wanted his country to have the best of everything, a high position in the counsels of the world, a strong and prosperous economy, the best social philosophy which, in his opinion, would ensure a decent life for everyone and especially for the poor and the backward, and a high degree of internal political stability and national unity The people of this country have reason to be proud or him that at a time when the goal of independence was reached, they could have the leadership of a man of the stature of Shri Nehru. There is no doubt that he gave to his country the best of what he was capable of neither sparing any effort nor grudging any inconvenience of suffering".

On the Indian economic thought, Nehru's values and institutional arrangements for the management of national affairs evoked different responses from diffrent segments of the Indian elite. The propagationists of free enterprise felt that his way of planning stifled individual enterprise while, on the other hand, the leftists felt that the management of public undertakings by bureaucrats was against the spirit of socialism His another pillar of nation-building was political democracy in the form of periodic elections and adult franchise, through which he wanted to create consciousness among the people and develop their faith in the democracy. Here again we have one opinion which thinks that we should have a communitarain type of democracy with the place of pride given to the village panchayats On the other hand is the capitalist view that democracy had created greater social conflicts in the country and that sectional demands had assumed significant importance The third view is that of socialists who allege that the democracy became a tool in the hands of the capitalists.

Economic Content to Democracy

Nehru undoubtedly had a great influence on the minds of people of different ideologies and ways because of his deep concern for human suffering The betterment of the people formed the core of his philosophy. He could shoulder the gigantic burden of one of the greatest democracies because of his deep appreciation of mass sufferings His belief in science and technology as powerful instrument in bringing about modernisation of the tradition-bound Indian society was strengthened by his concern for the uplift of the downtrodden. Today when the foundations of democracy seem to be crumbling in many parts of Asia and Africa, India that was built by Nehru stands as an entrenched fortess, unshaken mainly because he tried to give economic content to democracy and freedom Basically believing in the socialistic pattern of society, where the principal means of production were to be under social ownership or control, his approach to the public sector and private sector was pragmatic

In a nutshell it can be said that in his actions Nehru tried to attempt a compromise between extreme totalitarianism and a system ensuring the freedom of the individual to develop his personality in his own way he tried to create the machinery of the state which would assist him in doing so Nehru's thoughts, to a greater extent, have been translated into action through planning, through the concept of mixed economy and its mechanism and through the establishment of socialistic pattern of society

Review of Agriculture

Heavy imports of foodgrains to meet the needs of the country reflect the above mentioned observations In spite of zamindari abolition and restrictions on agricultural holdings, the expected progress could not be achieved because of the lack of finances at the disposal of the most of the agriculturists who have fragmented holdings and form the major constituent of the community The growth of institutional finance has been slow As has been pointed out, "whatsoever finances are available instead of helping the poorer sections and small holdings have so far helped the richer farmers with larger holdings" Moreover, instead of flow of resources from institutional sources helping in removal of disparities particularly in agricultural development among various regions of the country, trends so far indicate that inter-regional differences have been further accentuated Rich and irrigated regions have benefited at the cost of undeveloped, rainfed and dry areas The role of cooperatives, which were expected to play an important role in the development of rural economy and relief in rural indebtedness, has been very dismal Nehru emphasised, "Co-operation is not government control If it is governmental control, good or bad, it is not cooperation whatever else it may be" Contrary to his ideas, cooperatives in India have still to realise the importance of efficient management Most of the cooperatives are managed by the bureaucrats with the result there is more of administration than business

Industrial Situation

Nehru's initial stress on industrialsation paid dividends when industrial production increased at the rate of eight per cent from 1955-56 to 1965-66 and nearly seven per cent from 1968-69 and 1969-70. To protect the interests of workers, the government devoted much time, energy, legislation and budgetary funds towards improving their lot In spite of this, the growth of trade unionism has not set up healthy trends and most of

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Growth of Indian Economy in Socialism : *edited by Shri Ashok V Bhuleshkar, Published by Oxford and IBM Publishing Company for Jawaharlal Nehru Memorial Institute of Development Studies*

he time, their attempts have been to go on strikes on he slightest pretext without realising the difficult period he nation is going through. It is significant that loss of production through labour unrest has been much greater in the public sector than in the private sector The obvious explanation is that employees of public sector enterprises and services are well aware that they can bring greater pressure on the management of public sector enterprises.

Role of Politician

Even though Nehru guided the destiny of the nation and the country for over sixteen years after independence, he always felt that in a socialist democracy, a politician can have no private life. His life must be an open book above public doubt and suspicion Probably that is why he was respected equally by his friends and opponents and inspired a deep love and affection amongst the masses Viewing his personal political life, one feels that the wealth and income of all politicians from top to bottom should be made open to public gaze and scrutiny Would it not be desirable to disqualify all persons, having wealth and income above a certain prescribed limit, from holding elective and other political offices.

Nehru vs Marx

In his "Introduction", Shri Choksi, while analysing Nehru's thoughts on socialism has aptly said "In Nehru's way of thinking means were as important as ends In the Marxian view the ends justified the means on the premise that if a classless society was established, all exploitations and evil would end, one and for all, thereby sanctifying the use of any means to achieve the desired end It is a measure of the vitality and dynamism of Nehru's thoughts that he never accepted shibboleths, such as those of ultimate utopias, however, high and mighty the source of their origin, intuitively perceiving their static and deadening character History seems to be vindicating the breadth and the vision of Nehru's thoughts"

Portents of Coming Universalism

The Development Progress of Hong Kong and Singapore *by Theodore Geiger and Frances M Geiger, The Macmillion Press Ltd, London,* 1975 ; *Pages XIX*—239 ; *Price Rs.* 10

THE phenomenal economic growth of Hong Kong and Singapore, characterised by the authors as modern city-states, has admittedly evoked worldwide attention and appreciation. They have played very pivotal roles during the first and second development decades in promoting international trade as well as the cultural harmony of the desirable kind amongst the population. However, it has taken the excellent interdisciplinary labour of the two learned authors to portray this story in all too convincing a fashion They have also underlined the specific policies that could be deduced as being applicable to other countries based on the exprience of these two States.

Part I recapitulates the entire story of success and gives the summary, conclusions and backgrounds of the development process from the earliest stages to the latest thresh-old wherein the most valuable pardons deal with the Chinese socio-cultural background that is generally neglected by most among modern economists. This is also a dark area for some of our Indian scholars and hence represents an invitation to a more discursive understanding for bettering mutual relations.

In Part II the emergency of Hong Kong from a centre of entrepot trade to manufactory has received meticulous treatment. In part III Singapore has been given an equally exhaustive analysis. The burden of these two parts is to emphasise on the dynamism of the local Chinese businessmen under free market conditions and the judicious policies followed by the respective governments in fostering the same. The authors have paid high tributes to the dedicated public services rendered by British civil servants, who in their words, "are not docile handmaidens of the Chinese and British community but are least corruptible". Again, "their judgement standards tend to resemble that of high-minded mandarins who sought to achieve the confucianist ideal of disinterested administration and paternalistic concern for the welfare of the society" (p. 146).

The conception of good life of the citizens and the calculated efforts made to distribute the gains of rapid economic growth in both city-States throw up challenges to the newfangled economic policies of several developing countries including those that seek to impose curbs on the operation of multinational corporations. In regard to Singapore's conception of good life the authors are critical and give due consideration of the puritanical paternalism" of the political leaders. There is a lot of food for thought here.

The entire study is weighted in favour of grasping the socio-cultural, albeit particularistic, style of the life and credoes of the Chinese population, its ethnicity and its remarkable resilience in the face of heavy odds. The book, however, is not to be mistaken for an unvarnished adulation of either the qualities of enterprise of the Chinese people or the virtues of the free market economy The identification of the Indian youth in Singapore with the Republic's ideals and aspirations has been happily commented upon with candour by the authors The analysis of the political institutions in their socio-cultural and economic background has great depth and reveals if anything at all, a mastery of details and their interactions

The authors identify the current trends in both city-states as being the gradual if substantial strengthening *of universalistic characteristics* However, they do not deny that it is the particularism of the ethnic groups that had been its strength as well as weakness The entire book is in some respects a forthright plea in favour of a universalistic society (with multinational corporations) that is capable to a significant extent of managing its processes of socio-cultural change over a period of time Short of emerging into this state, Singapore, particularly, stands the chance of facing serious unemployment and halt in its growth of real income. Here then is the quintessence of the wisdom of the National Planning Association (NPA), Washington, D.C. presented by two serious scholars. The only draw-back of their effort is the price of the book which is prohibitively high for readers in India

—B. N Nair

Development Notes

Barauni Refinery Makes Record Profit

The Barauni Refinery, a processing unit of the Indian Oil Corporation, has made a record profit of nearly 26 crore for 1976-77, the first time since it went on stream in 1964. Last year the refinery earned a profit of Rs. 17 crore.

This year's record profit is inspite of a major setback last year when the Refinery had to be closed for nearly 20 days due to unprecedented devastating floods. The Refinery has also paid a sum of nearly 42 lakhs to its employees towards bonus @ 20 per cent for 1976-77.

Exports of Electronic Goods Up

There has been 67 percent increase in the export of electronic goods and the production has risen by Rs. 46 crore. Consumer electronics goods registered the highest growth of 25 per cent during the year followed by professional electronics goods at 10 per cent. Radio and TV sets account for about 80 percent of the production in the consumer electronics area. Production of TV sets rose from 96,800 to 1,43,500 in 1976 and of radio receivers from 26 2 lakh in 1975 to 29 8 lakh in 1976.

Irrigation Schemes for Tribal Areas

Rs. 17.62 crore would be spent on four medium and 395 small irrigation schemes in Bilaspur and Raigarh districts of Madhya Pradesh this year. The schemes include 47 small works in the tribal areas of Bilaspur district under the tribal sub- plan and 64 small works in the tribal areas of Raigarh district under the same plan.

Completion of the above schemes will mean the extension of irrigated area in the two districts by 86,000 hectares.

Exchange Earnings from Tourism

India achived 14 8 per cent growth in tourist arrivals in 1976, in spite of continued general setback in long haul traffic in the world. According to the 1976-77 annual report of the Ministry of Tourism and Civil Aviation tourist arrivals crossed the half million mark in 1976 with 5.33 lakh tourists (excluding nationals of Pakistan and Bangladesh) visiting India compared to 4 65 lakh tourists in 1975. There was a large increase in tourist traffic from West Asian and Gulf countries

Rubber Reclamation Factory for Ratlam

A Rs. 81 lakh medium size rubber reclamation factory sanctioned by the Central Government will be opened in the private sector at Ratlam in Madhya Pradesh.

The industry with a production capacity of 2640 tonnes will manufacture moulding powder out of old rubber pieces. The factory will start production in a year's time and offer employment to over 100 persons.

Micro Milk Chiller Developed

A Micro Chiller which is ideal for preserving smaller quantities of milk collected in remote milk collection centres has been developed by Larsen and Toubro. The micro chillers offer the advantage of bulk coolers and instant chillers at a lower price. These 500-litre units are ideal for villages where the milk available for marketing does not justify larger investment in conventional milk-cooling equipment.

This Micro Chiller has been developed in India for the first time. The chilleder consists of a refrigeration unit which produces chilled water for cooling of milk. Integrated channels in the milk tank walls, through which chilled water is circulated, ensure rapid cooling of milk. The unit cools the entire quantity of milk simultaneously at a fast rate. The cooling cum—storing tank is made from a special aluminium alloy. An exclusive feature of this tank is its design which makes it an efficient heat exchanger. It enables milk to be preserved for 24 hours without spoiling.

World Bank Aid for Irrigation Projects

A World Bank loan of Rs. 52 crore approximately has been negotiated for over a dozen medium irrigation projects in Orissa involving an innovation in the traditional lending procedures of the Bank. Instead of the Bank's assistance being tied to specific projects, the Orissa irrigation credit which will be from the IDA, will be used for as many of the projects as listed by the State government. These projects have been selected on the basis of their fulfilment of the technical and economic criteria laid down by the World Bank, including a 12 per cent return on investment

Punjab Plan to Line all Water Courses

A programme for lining 4,000 km of water courses would be accomplished in Punjab by the end of this year as against 1,400 km water courses lined during the past 30 years The project is estimated to cost Rs. 19 crore. It is also proposed to undertake lining of all water courses in the state–50,000 km—in five years. Punjab would thus be the first State in the country to achieve cent per cent lining of water courses.

Master Plan for Tourism

A Rs. 12.75 crore master plan prepared for promoting tourism in Madhya Pradesh is to provide facilities to middle income tourists, who form the bulk of traffic, both domestic and foreign.

The plan envisages development of tourist facilities at places of historical and archaeological interest, wild life interests, holiday resorts and pilgrim centres and wayside amenities. The plan also provides for increasing transport facilities, organisation of festivals, fetes, exhibitions, cultural programmes, encouragement to local talents and creation of permanent recreation centres. The State attracts approximately 25 lakh tourists every year.

The Democratic Temper and Temper of Peace

We as a nation have been conditioned in a democratic and peaceful manner. This conditioning is opposed to the type of conditioning which a country like China has had, especially in the last dozen years or so. Even previously for 30 years, China has been in a sense at war, and it has constantly put forward the idea of war. We have, on the other hand, constantly spoken about peace and we are, in spite of using excited language sometimes, a peaceful people and we have pleaded for peace in our own country and all over the world. Naturally that conditioning is different from the conditioning which China has had Having so conditioned their people, the Chinese Government can turn the people's thinking in any direction they choose.

Democratic countries cannot normally behave like this In India we have to face the new situation against a background of democratic freedoms. To some extent, these freedoms have to be limited. There is the Defence of India Ordinance which is not functioning wholly as it is meant to **We do not like to enforce even the Defence of India Ordinance unless we are forced to do it. At the moment we are inhibited in acting even in regard to stopping a man from writing or publishing something.** But in China there is a completely regimented apparatus controlling private life and public life. That may be helpful in a war effort, but I do not think it is helpful ultimately

I do think that a democratic background is ultimately the stronger of the two. You have had a glimpse of such strength even in the last two or three weeks in India in the wonderful response which we have had from our people That is not a regimented response. That is a spontaneous response which has come out of the people's minds and hearts It does show that our fifteen-year-old democracy has taken roots in the people They may quarrel with each other and make all kinds of demands, but when they see that there is a danger to their democratic set-up, they respond in the manner in which they have done That is a very healthy sign. That is a very hopeful sign which has heartened all of us.

So I do think that the democratic apparatus is ultimately good even from the point of view of war, provided the apparatus and everything else is not swept away at the first rush We can be sure that it will not be swept away Therefore, it becomes a question of utilising people's enthusiasm in a democratic manner with such limitations as war impose upon us and directing it to defend the country. We have to think from a long-term view. It should not be a case of losing our breath too soon We may have to run long, long distances, and we have to carry on with determination and with fortitude for a long, long time

Essentially, the parliamentary form of democracy is based on laws and conventions Even more than the law of the Constitution, it is based on conventions, and the behaviour of the people who participate in its working . . .

To my mind, the freedom of the press is not just a slogan from the larger point of view but is an essential attribute of the democratic process. I have no doubt that even if the government dislikes the liberties taken by the press and considers them dangerous It is wrong to interfere with the freedom of the press. By imposing restriction, you do not change anything, you merely suppress the public manifestation of certain things, thereby causing the idea and thought underlying them to spread further. Therefore, I would rather have a completely free press with all the dangers involved in the wrong use of that freedom than a suppressed or regulated press . .

If information—including conflicting views and sometimes even contradictory views—comes from every quarter, we are more likely to arrive at the truth out of that welter than if only one aspect of it was presented. The whole concept of freedom of information rests on this idea. I entirely agree that sources of information should be as free and as varied as possible.

. We live in a changing world and a changing world brings changing problems I am convinced that the more freedom there is the better Suppression, even of what I may consider wrong, is bad I am prepared to take the risk of allowing truth and the so-called right and the so-called wrong to appear on the scene . Toleration of an opinion, even though you disagree with it, is a sign of culture and civilisation But before you tolerate something, you must know what it is Therefore, I consider that the principle of freedom of information through the press, the radio and other mass media is very important

Strength does not lie in strong language and shouting, but in other matters It is perfectly true that we want peaceful settlements of our troubles with China and Pakistan, and we shall endeavour to realise them, however, difficult they may seem today. Taking a long distance view it is essential that we should exist peacefully with these two neighbours of ours, more particularly with Pakistan. We cannot live in conflict for a long time. I hope a time may come when India and Pakistan might draw closer to each other; there is no other way

"The desire of a ruling nation to maintain the *status quo,*" says Trotsky, "frequently dresses up as a superiority to 'nationalism', just as the desire of a victorious nation to hang on to its booty easily takes the form of pacifism. Thus MacDonald, in face of Gandhi, feels as though he were an internationalist".

I do not know what India will be like or what she will do when she is politically free. But I do know that those of her people who stand for national independence today stand also for the widest internationalism . . .

Politicians and statesmen strive for peace through the technique of politics which consists in devising carefully worded formulae .But somethingfi more is necessary than mere formulae . What we need is a passion for peace and for civilised behaviour in international affairs. It is the temper of peace and not the temper of war that we want.

JAWAHARLAL NEHRU

Printed by the Manager, Govt of India Press, Ring Road, New Delhi-110064 and

Regd. No. D(D)-152

On Gandhi

This little man has been and is a colossus before whom others, big in their own way and in their own space and time, are small of stature. In this world of hatred and utter-most violence and the atom bomb, this man of peace and goodwill stands out, a contrast and a challenge. In an acquisitive society, madly searching for new gadgets and new luxuries, he takes to his loincloth and his mud hut. In man's race for wealth and authority and power, he seems to be a nonstarter, looking the other way, and yet what authority looks out of his gentle but hard eyes, what power seems to fill his slight and emaciated frame, and shows out to others! Wherein does his strength lie, wherein this power and authority? . . .

Often we do not understand him, we argue with him and get angry sometimes. But the anger passes leaving us rather ashamed of our lack of balance and restraint Only that pervasive influence remains and he seems to become the vehicle and embodiment of some greater force of which even he is perhaps only dimly conscious Is that the spirit of India, the accumulated experience of the millenia that lie behind our race, the memory of a thousand tortured lives?

I have sometimes found it difficult to understand Gandhiji's approach because my mind functions differently While fully appreciating the political aspects of non-violence in our struggle, I have been unable to appreciate many of its implications Gandhiji, though he lays emphasis on certain ethical and other aspects, does not ignore political aspects, as every one knows It is perhaps a question of emphasis for him. He has developed a certain technique of action which has yielded great results to our movement for freedom

In many matters I have ventured to disagree with him and probably I may continue to disagree with him But at the present moment I have no doubt that we must give full and loyal cooperation to him, so that he may have full opportunity of developing the movement

This does not mean my accepting all the implications of everything that Gandhiji may put forward, but I do propose to function as a disciplined soldier as long as I can

Gandhi, laying stress on India's past treasures of the mind and spirit, told us not to close our doors and windows to the winds that blew in from the four quarters of the world, but he warned us not to be uprooted or blown away by these winds . . . Gandhi was the man of action, the true revolutionary, single-minded in his aim and going as the arrow from the bow . . . Gandhi did not talk or perhaps read much of poetry or art and yet his life .. was a poem in action, and he wanted to put himself in harmony not only with nature, but with the lowest in nature. And so Gandhi crept into the hearts of those who were disinherited and whose life was one long tale of unhappiness

He taught us the love of truth and straight dealing not only in our individual lives but also in public affairs and in the intercourse of nations He taught us the dignity of man and of man's labour. He repeated the old lesson that, out of hatred and violence nothing but hatred and violence and destruction can result And so he taught us the way of fearlessness, of unity, of tolerance and of peace

How far have we lived up to this teaching? Not very far, I fear.

JAWAHARLAL NEHRU

VOL XXI/21 1 DECEMBER 1977

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What Are We Planning For ?

New Approaches to Economic Policy

Statute Change : Great Act of Renunciation

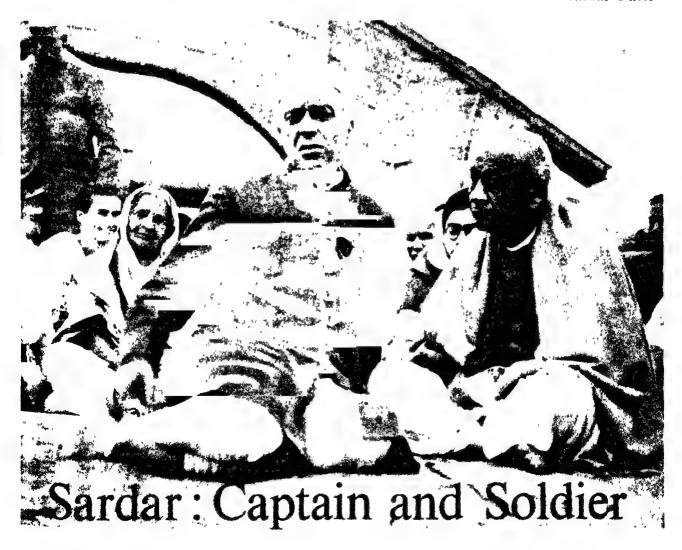
PM for New Communication Policy

Onward to Rolling Plan

Let the Officer bow Before the Peasant

The peasant does not belong to the third world or the last estate but to the first estate. The rest are parasites. He is the food giver. If he was idle, the whole world would starve. His is also comparatively the purest life in the world. Character always depends on whether a man works for his own bread or works others for his bread, and the peasant is the least dependent among all mankind. I resent the description of the peasant as a poor, wretched creature No, if any one has the right to walk with his head erect on earth, it is the peasant. Why should he bow his knee before any one, be he a zamindar, or an officer of the government ? Let them bow to him without whom all of them must starve.

Sardar Patel

Sardar : Captain and Soldier

The Whole of India is my Village

I do not believe in any caste or community. The whole of India is my village and men of all communities are my friends and relations. I have come today in the hope of making you see this ocean of humanity. There should be no need to speak of our virtues. They speak for themselves. But our faults far exceed our virtues Do we grudge our neighbour his prosperity ? When we see him well off, do we feel happy or do we feel envious ? When our cousins or even our real brothers grow prosperous, we do not feel happy. Whether you belong to a 'high' or a 'low' family has nothing to do with your qualities. A man with character, a man who practises virtue is definitely superior to one who claims to belong to the best families. Forget all distinctions such as 'high' families and 'low' families. Today the most ancient of kingdoms are being destroyed. All people belonging to the various castes and communities are the children of the same God. After a man dies, does anyone ask, is the corpse that of a brahmin or of a chamar ?.. ... To what do you attach the meaning of high or low and what is the death of which you are afraid ? Whoever is born is to die one day Why then should one die as a coward and not as a man ? To live or to die is in the hands of God. To what purpose, then, should we be greedy ? Why should we be jealous of our neighbours ? Why, in short, should we do anything wrong or evil ?

Sardar Patel

(from speech in his home village in Karamsad)

It is no use having palatial building worthy of the capital city if, along with them, you have unsightly and insanitary structures which disfigure the whole city. I should much prefer that we go to another place where we can live in more compact, less ostentatious but cleaner and simpler buildings.

From Sardar Patel's Letter to Shri Mohanlal Saxena, Minister for Relief and Rehabilitation, October 23, 1949.

YOJANA

Volume XXI Number 21

1 December, 1977

10 Agrahayana, 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan but is not restricted to expressing the official point of view

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Subscription : Annual—Rs. 18 Two Years—Rs. 30. Three Years—Rs. 42. Foreign Subscription : One Year—£2.70 or $ 50. Two Years—£4 50 or $9 00. Three Years—£6.30 $12 50. Single copy—Twelve pennies or $0.25

There is no school equal to a decent home and no teacher equal to honest, virtuous parents. Modern high education is a deadweight on the villagers. Their children will never be able to get it, and thank God, they will never miss it if they have the training of the decent home.

—Mahatma Gandhi

What are we Planning for ?

THE REPORT of the Capoor Commission on the Rewasa episode and the revelations made before the Shah Commission about harassment, illegal arrest, insensitivity in high places, unimaginable sadism and worse are significant on more than one count. The erosion of ethical sense started long before the infamous emergency was proclaimed. The horrendous events of Rewasa and nearby Bhiwani took place in March-April, 1974. In these and the later events, the highest in the political hierarchy had a share. The top civil bureaucracy was prepared to participate in the most fantastic oppression and cruelty. Some policemen, far from acting as the guardians of the law, were almost eager, it would seem, to violate even its rudimentary norms.

Even if some of the members of the central cabinet can plead innocence, ignorance and helplessness in the emergency setting, no such plea is possible or available in the case of the events of 1974. Among the redeeming features of the Rewasa horror was the courage of a woman minister of Haryana and some lawyers of the State. Promptly they were dealt with in accordance with the prevailing norms of public ethics, public life and public administration. Did the other colleagues of Mrs Chandravati raise their voice against the indecency of what happened in that hapless village ? Did other lawyers launch a movement of boycott ? What was the famed pace-setter service doing beyond asking for special pays, selection grades, deputation posts and foreign assignments ? Where was the conscience of the police service ? What about other functionaries ?

And can members of the central cabinet, members of parliament, the press and the professions say with any degree of honesty that they did everything to rouse the nation's conscience ? On the other hand, the repeated importunities of the harassed people did not even get so much as a hearing. The women went from minister to minister, from official to official but these high dignitaries had other things to do than listen to the woes and work for the redress.

Places of worship were demolished with impunity. An old woman was burnt to death Brother and sister were subjected to indignities beyond description. And this was not during the emergency either.

If a whole people were silenced by this orgy of terror, what is even more tragic that the gruesome revelations do not appear even now to have stirred the nation to righteous indignation. Business goes on as usual.

We may plan for plenty, for dams big and small, for industries, giant and tiny, for schools, for roads, for water and what have you. The planning commission may do exercise in projections, perspectives, financial outlays, resource mobilisation, physical targets and defence preparedness. If a quarter century of planning has only led to conditions of mediaeval terror, destitution of the spirit, the erosion of the ethical will, the emasculation of the people and the arrogance of the rulers, the planners have much to answer for. So, of course, have our political leaders, the civil servants, the journalists, the lawyers and the rest.

Judging from speeches and statements of leaders of government and members of planning commission, a great exercise is now on about a radical new approach to planning. Will these wise men take some time off and ask themselves what they are planning for ? The least that the planning commission can

individual greed, but helps in the process of a great nation and a noble people regaining the strength to withstand even the worst despotism, private or public, and defend their honour and self-respect as well as the honour and self-respect of their fellow-men.

us, by all means, plan for bread. But let us also p for the basic quality of a human being. All our pl so far have only made slaves of a free people beasts of men.

Towards a Janata Party Economic Policy

AT THE time of writing this, the executive of the Janata Party is engaged in the arduous exercise of giving meaning and content to its election promises in the economic area. On the broad political front, the party has acted with assurance and speed. Not only are the liberties and independence of democratic institutions being restored at a breathtaking rate, but the prime minister and the home minister have gone to the heart of the matter by recognising and even pleading for the adversary role of the media including the government media and by advising policemen, administrators and statutory bodies to resist unethical political (including ministerial) highhandedness and illegal orders The police commission will be headed by an administrator and its terms of reference will be fundamental. The enquiries into the emergency infamy have vindicated the government's decision to order them.

The main criticism of the party has been the tardiness in economic policy formation. Even here, the critics have recognised the immensity of the task of correcting the mismanagement of the economy in the immediate and, in some ways, the not so immediate past. Public sector expansion has not been so planned as to yield the necessary surpluses while consuming a large chunk of investment resources—thus leading to stresses of different kinds Industrial production, in a circumstance of subsidised consumption, protected market and dependence on governmental largesse, has led to problems of viability, without significantly adding to employment capacity A viable agricultural sector has received less than due attention and is starved of capital. Licensing and controls in the name of socialism have led to monopolies and widespread corruption. Inflation in the absence of growth and in the context of growing unemployment as well as deepening poverty has been a continuing feature of the kind of planning this country has witnessed so far.

The problems are real and no serious critic is suggesting that solutions are round the corner The main criticism is that even in areas where decisions are possible, the government has been slow in acting, as for instance, in the wages and incomes area What is refreshing, however, is the growing convergence of views among the diverse Janata leadership on the basic approaches. This is reflected in the panel report suggesting a forty per cent allocation to agriculture, restriction on flow of private foreign capital, more efficient running of the public sector, decentralised industry, speedy land reforms with a lower limit of 2 5 acres, strengthening the public distribution system, organisation of service cooperatives both for rural industry and for agriculture, creation of new avenues of rural employment, enlargement of the internal market, ban on new industry in or around metropolitan areas and reversal of monopolistic trends.

ALMOST SIMULTANEOUSLY Shri Charan Singh's book embodying broadly his views on economics has come out. The home minister has com be recognised as a person who has devoted consi able thought to a radical new direction to econo policy. The problem has been posed by him as between freedom without equality and equality with freedom. The middle path between capitalist democr and democratic centralism of the communists would cording to him, seem to lie in narrowing income dif entials with maximum freedom to the citizen in " choice and operation of his economic life". The sta intervention is as bad as capitalist exploitation. T the small man—shades of Schumacher and the shac of the Mahatma—becomes crucial in Shri Cha Singh's scheme There is no other way of bring about maximum egalitarianism consistent with ma mum freedom, ending unemployment, dismant monopolies—whose assets according to the home m ister, have grown from Rs 2,335 crore to Rs 5, crore in a decade—and securing democracy aga authoritarianism. In going about this business, would caution against ignoring the "endowment fact which he has clarified to mean the maximising of yields from land, labour or capital recognising limiting factors in each case

By and large, the Janata Party's panel report is accord with Shri Charan Singh's emphasis on "sr independent peasant farms, interlinked by service operatives" and on cottage and small-scale enterpr again to be served by cooperatives In this sche if the monopolies have no place the state has li place even in the distribution process ; for product and distribution, as prescribed by Gandhiji, would near simultaneous. Self-employment has a big pl in the home minister's strategy

Shri Charan Singh's other ideas on the nexus l ween politician and businessman and on multinatio have been endorsed by Shri Vijay Kumar Malhotr a paper for the meeting of the Janata party execut He has drawn attention to the party manifesto cautioned against dilution of the idealism of that ma festo He has laid stress on personnel and pri policies so as to rid the public sector of bureauc ineptitude

THE JANATA party's election promises incl an economic charter which sets a ten year de line to eliminate destitution, lays down a policy narrowing the income differences between the to and the villages, enjoins a gradual reduction in inco disparities towards a goal of one to ten ratio ir decade, and calls for the "right to work" of all citize

Now, criticisms are certain to abound. These be of more than one kind. The newspaper writ will reflect the veiled attempt on the big business scuttle policy in its self-interest or the naivette of urban liberal whose capacity to think beyond set f mulations has not been much in evidence. There also a category of informed and genuine critic committed to a basic ideology without be

imprisoned by contrived jargons. One such published criticism has been that the Janata party panel has not sought to reduce public sector investments and eliminate fresh investments in the unviable industrial sector in order to find the increased resources for agriculture, the panel is silent on the subsidy question while its reference to the distribution system may imply greatly increased subsidies with possibilities of further inflation. The assumption that agriculture cannot absorb more men is also sought to be disproved by citing the Japanese example where the farm productivity rate of five times the Indian average has been achieved through modern methods and yet agriculture has absorbed much more than double the number of people so absorbed in India per unit of cultivated land

The example of Punjab has also been invoked. Intensive agriculture even with technology has great scope for labour absorption. If this is accepted there would be no need to reduce the level of technology elsewhere, cloth for instance. **Finally the legal and administrative compulsions of any new radical policy do not seem to have been fully appreciated. There is need to dismantle much of the administrative apparatus, with a frightening consumption and wasting capacity.**

WITH ALL this, the Janata party may still be able to win appreciation for not fearing the new. While the party may continue to listen, read and learn, it need not be afraid of making mistakes, even big mistakes, so long as they are not silly ones. And, whatever the policy, the time is now for implementation. The planning commission, while providing the expertise, cannot but function within the political and economic policy of the party in power in our scheme of parliamentary democracy. If this is to be ensured, the party has a simultaneous obligation of mobilising public involvement in the planning process.

Onward to the First Rolling Plan

A POINT which is likely to be missed in the guidelines issued by the planning commission to the state and central authorities is the emphasis on the delivery of basic amenities and services in villages like drinking water, health care, elementary education and non-formal adult education Add to this an appropriate communication policy and outlay as well as pre-emption of funds for investment in irrigation and you have as radical an approach as anyone would like to have. Dr. Raj Krishna has also said that seventy districts with an employment rate of ten per cent have been identified for block level planning. Some doubts have been expressed about performance evaluation of the work of the block agency These are genuine doubts even as the difficulties are real. They can be overcome only if new organisational patterns outside the present administrative system are worked. It is because of the neglect of this important detail that the previous initiatives in area planning have been defeated.

The argument that, since the commitments for long gestation projects are not variable and the new emphasis on rural development will limit the options, manoeuvrability under the rolling plan idea will be severely limited is not very convincing The accent is on time-bound targets for the removal of unemployment, elimination of destitution, and reduction of income and wealth disparities. Further, the size of the plan will correspond to real savings, there is, therefore, scope not only for worthwhile annual assessment and reassessment but even for a continuous watch over movements in several directions Earlier it was assumed that a desired growth rate is not a function of different aspects of policy including realistic resource mobilisation. Realism is neither a substitute for nor an argument against innovation The climate for such innovation is very favourable with the food and foreign exchange situation continuing to be bright The scope for innovation can never be said to be exhausted, it is not so, in any event, now, not only because of some fortuitous economic factors but more importantly, because of a new mood in the country.

The view that the planning commission believes in no more than continuity and consolidation is not only uninformed but a little uncharitable and, if one may say so, malicious. The weakened resource base has obviously been taken into account judging from Dr. Raj Krishna's observations For some thirty to forty per cent increase in the outlays for the coming plan, compared to the one which is to be terminated in March next year, the commission is confident of raising resources through market borrowings and additional taxation It is strange that the very critics who have been arguing that several sources of taxation have not been tapped should continue to talk of narrow resource base.

DR. RAJ KRISHNA has clarified that while the tempo of public sector investment will be maintained and even increased, the direction will change in favour of rural infrastructure, public distribution, basic industries to serve agriculture and small units and supporting infrastructures to meet the financial and commercial requirements of farmers and rural artisans. All this will provide a strategy of growth "that will spread the employment pattern faster" than before Dr Raj Krishna has said that the planning commission is working for the allocation of resources to small as well as large units in the eight reserved industries—grain milling, sugar, vegetable oils, textiles, wood processing, leather, light metal fabrication and ceramics. The most appropriate technologies to maximise capacity utilisation (of facilities and manpower) will be located Public distribution schemes would include fair price shops at every public works site

The employment strategy would aim at sustained increase of labour absorption in irrigation and agriculture including processing, storage, transport and distribution. The service sector will be another area of fruitful employment, besides, of course, cottage and small scale industries and self-employment.

The planning commission has stressed the need of coordinated (as different from compartmentalised) economic policies linked to priorities

BESIDES TARGET orientation and accent on the social aspects of development, the caution against enthusiastic targeting, without the backing of resources, is a salutary aspect of the planning commission's guidelines The states have been asked not to neglect existing health, education and farm support services to be financed from the non-plan budget Assets already created must be maintained well and utilised equally well. Irrigation and power

projects at an advanced stage of building should be completed and commissioned quickly. The minimum needs programme should be linked to the felt requirements of target groups, that is, requirements like house sites, rural water and electricity, market roads and health care.

Though the time table for the NDC discussion and launching of the new plan is rather tight, the commission will do well not to give the impression being in undue haste. A somewhat enlarged pa cipation of the professional and the not so pro sional sections of the people in the discussion of w is, in essence, a national task would help cla many issues. The least important in such discuss is the entrenched bureaucracy, particularly the fin cial bureaucracy.

Statute Change: Act of Renunciation

IN THE discussion on the changes in the Constitution in the context of undoing the mischief of the 42nd amendment, what has perhaps not received due attention is the unique gesture of renunciation shown by the government. It is all very well for Shri Masani to quote from the Janata Party manifesto and to draw attention to the original sin of the 42nd amendment in the manner of its being bulldozed through Parliament with the opposition in jail, the press muzzled and the people emasculated. It may also be good to say that the opposition majority in the Rajya Sabha cannot acquire the status of a veto, and should, in fact, be shown up for what it is before the general public. In the bargain, Shri Masani has hinted at some possible vested interest. He has also quoted JP's words about parliamentary supremacy calling it "something sordid, something revolting to a democrat". There can be no dispute about the argument that no organ of the state is or should be supreme and that the President must also have some role in the constitutional set-up

But, why does Shri Masani ignore that a constitutional amendment is not a ritual to be attempted without regard to a certain prevailing compulsion ? And why does he not recognise that, besides giving up most or all the powers conferred by the 42nd amendment, Shri Desai has even gone out of the way in proposing to subject any proclamation of President's rule in states to judicial review ? Shri Namboodripad also will be better able to sell his ideas if he handsomely recognises the degree of renunciation of powers in favour not only of liberty but also of federalism involved in the government's proposals The rigors of preventive detention are proposed to be almost altogether eliminated through a constitutional injunction The fine balance between the people and parliament, parliament and the judiciary, the judiciary and the executive, the states and the centre, the citizen and the government, will be restored The gross iniquity of the state having all the rights and the citizen having all the duties will be removed The President can refer back to the cabinet, at least once, any advice tendered by it The courts will be enabled to call for rules of government business The term of the Lok Sabha and the assemblies (where the Janata party has comfortable majorities) is to be reduced to five years. The privileges, powers and immunities of legislatures are to be codified. The special majority needed in some cases for a Supreme Court verdict is sought to be annulled It is proposed to give back to the states education and forests. And finally, the central powers of unilateral decision on the dispatch of forces to the states, of arbitrary declaration of emergency and equally arbitrary amendment of the Constitution are proposed to be given up.

WHATEVER THE criticism, one cannot but recognise that such renunciation of powers is unique, without parallel and exemplary. Shri D and his colleagues will need all the goodwill and s port to carry their intentions through. Once thi done, we will be able to take off from there for r destinations of democracy, freedom, people's sov eignty, that is, *lok shakti*.

An Idea Dimension to Planning

MAHATMA GANDHI was once asked a spec question: "If distribution could be equalis would not mass production be sterilised of its evils He replied, "No; the evil is inherent in the syste Distribution can be equalised when production is lo lised; in other words, when distribution is simultane with production."

Gandhiji recognised the limits of such localisation production. The trouble, very often, is that absol vitrue is made of the ideas of men like Gandhiji was largerly talking of approximations, as is clear fr his writings.

Take for instance cement. This is recognised a basic development input The mini cement plant te nology evolved by the Cement Research Institute, t great extent, answers to Gandhiji's description T Director of the Institute, Dr H C. Visveswaray has relevantly drawn attention to this aspect He said that this new technology will avoid wasteful mo ment of materials and localise the utilisation point

There are dedicated civil servants and social work in this country who have sought to relate their id to the social consequence of development. Only t are far away from Yojana Bhavan It is time planners reckoned with these men of ideas, humil endeavour and social responsibility and went bey the insular and in-breeding bureaucracy of the co mission rooms.

Dr. Visveswarayya has also referred to other adva ages of the mini cement plant technology based vertical shaft kiln compatible with Indian paramet This will greatly reduce packing charges, enable development of the industry in terrains where mo ment of machinery and cement is difficult, make p sible the use of small deposits of limestone scatte all over the country, bring down the unit cost of cem transportation and thus reduce the strain on the nati transportation infrastructure.

The other advantages are equally obvious. Emp ment in villages can be created on a dispersed b The mini plant technology will contribute to the de lopment of local economies, bring the cement indu within the financial access of the small entrepren invest a sense of ownership in men with relati smaller means, reduce per unit capital investment (c trary to the prevailing notions of economies of sca

a myth exploded by the examples given by Schumacher) and help realise quicker return on capital because of the low gestation period.

WHAT HAS been achieved by the Cement Research Institute is nothing less than a revolutionary breakthrough. A complete analysis of a small cement plant was carried out. Each dissected component was technically evaluated. The critical areas of design features and operational snags were pinpointed. Design alternatives were tested; and, finally, the most suitable solutions were found. The characteristics of raw material and fuel to be used, the process system engineering and detailed designs of components were studied in depth.

The present cement manufacturing capacity in the country is around 20 million tonnes, and there is 90 per cent utilisation. Increases in production have necessarily to be through new units Large plants are both costly and long in coming. The various assistance schemes put forward by the industry will raise some social questions. Machinery replacement and rehabilitation will also be posing problems.

The Cement Research Institute has also done work on the use of fly ash from thermal power stations in areas were limestone is scarce. Use of steel plant sludge in the place of limestone is also being investigated. Steel plants can, in the bargain, make some money and solve the problem of waste disposal

The Industry Minister is all for the mini plant, and industry cannot be averse to it Even with intensive use of manpower, the cost of a mini plant is unlikely to be more than four or five crore rupees. One presumes the planning commission will help set up a very large number of such plants, particularly in the villages.

THERE IS also news from the Bhabha Atomic Research Centre Dr. V K Iya of the isotope group has held out hope of a new method of recycling sewage using isotope radiation technology for the treatment of sewage sludge with gamma radiation obtained from the cobalt-60 source. Besides making available organic fertiliser, this will improve public health standards. Gamma radiation cleanses air and water of micro organisms (present in sewage) which often lodge in human bodies as parasites through the contamination of drinking water or through atmosphere. Isotope radiation has other uses, for instance, assessment of water reserves, extent of depletion and rate of recharge, which can help solve drinking water and irrigation problems Ground-water hydrology is useful in determining the flow rate of river waters, which can help resolve inter state river disputes. Isotopes can be used to study the effluent discharge pattern and control water pollution.

BARC has already developed labelled fertilisers, which, when applied to particular soils, monitor data on the right quantity and type of fertilisers for various floral species. Only two other countries have produced labelled fertilisers.

THE CENTRAL Building Research Institute has developed a prototype domestic solar heater which is now being manufactured under licence from NRDC The storage tank can maintain the heat for almost two days. The unit can be installed anywhere.

Several other projects to use solar energy have been identified. Priority projects include water pumps, crop driers, distillation and desalination equipment for clean drinking water and development of solar thermal energy hardware and systems, including direct energy conversion device. It is heartening to learn that design and development of collectors for low, medium and high temperature applications have been undertaken as part of a national programme.

New Information Policy

THE EXTENT of media misuse in recent years has understandably led Shri Morarji Desai to promise constitutional safeguards for the freedom of the press. And he is not going to grudge if the freedom of the press is "used with a vengeance". He said it was "the business of the press to annoy the government". He has equally set his face against any propaganda by government media. Their task is the presentation of totality of information. Even where government control of certain media like the films is an inescapable social responsibility, it should be such as to preserve the core of freedom of information. On behalf of the central media at least, he has promised that they will be truly national and not partisan.

One is not very sure if the communication bureaucracy fully understands the import of Shri Desai's policy statement. The planning commission has also not given any indication of understanding the significance of the new communication policy. The incremental approach is sought to be applied even here, whereas a basic idea debate is what the situation calls for.

Communication policy will have to fit into the general scheme of raising the cultural, social and economic levels of the rural people. Government must shed the wholly untenable responsibilities like organising film festivals, financing films, regulating the titles of journals, bringing out a year book on the press, film censoring and the like. Both film censoring and allotment of titles should be governed by law and violations can be settled by courts, through autonomous agencies like the press council with statutory powers.

News agency financing should be by parliamentary enactment, not through government doles. Most of the central and even state communication infrastructures must be dismantled here and now and the ministry of information and broadcasting has no rationale to exist, except that a minister of information may be a kind of chief spokesman of the government. Even if this extreme step is considered inopportune, a great simplification of the communication infrastructure is called for

As for Radio and TV, we will have to think of a few thousand low power transmitters, to be administered by local bodies, even if they do it irresponsibly. Similarly, exhibitions, people's art, posters, publication of literature, film production and projection, oral communication etc. should become the pace-setters of a cultural revolution, which is possible only if at least in each block there is an autonomous infrastructure. The dynamics of such a policy will be such as to lead to an efflorescence of people's culture.

But then, as in other matters, a few "experts" are likely to reduce a national endeavour to pet ideas and schemes of spending. Even history cannot defeat the planning "experts" of this hapless land. And if the course of the Shah Commission has revealed anything, it is this . that a few clerks—call them chief secretaries, secretaries or directors—did rule this land. The existence of information ministries and departments are at least partly responsible for this great disgrace.

Federalism : New Demands

SHRI MORARJI DESAI'S suggestion that land revenue and land management be given to the

panchayats and that all government functions performed by local bodies be transferred to these bodies takes the controversy over federalism to its logical end. Shri Desai, in his address to the central council for local self-government and urban development has affirmed again a view widely held that democracy and decentralisation go together. His reference to obligatory elections to local bodies at stated intervals and immediately after any supersession would imply a constitutional basis for local government.

Shri Desai posed to the state leaders asking for more powers whether they would stop interfering with the functioning of decentralised authorities. Proper functioning of panchayats, concerned with eighty per cent of the people, was crucial to the country's political health The metropolitan and other urban municipal bodies must set the pace of good local administration. They should stop demanding more resources without first showing some worthwhile return in the shape of services like keeping towns and villages clean and healthy.

Shri Jyoti Basu and Shri Namboodiripad who have been consistent in their demand for state autonomy, without the blackmail tones of the more rabid protagonists of devolution of power, may do well to spell out their views on these aspects. This will make it easier for them to demand from the centre as much power as they themselves are prepared to surrender to the local self-governing bodies

The Congress regime, more so in the last decade, had made a mockery of whatever federalism was provided for in an overwhelmingly unitary form of constitution. Shri Basu's suggestion that with the delegation to the states of effective financial, political and regulatory powers, the centre would be in a better position to guide them is worth examining. He was anxious that nothing should be done which might make the centre weak. Without any such risk, the states could have some plenary powers in planning, licensing and language policy These demands have been voiced by a cross section of political opinion in the country from time to time. The time for a constitutional exercise based on Shri Desai's views and strengthening as well as broadbasing the federal concept is now opportune

Shri H. M. Patel speaks

IN HIS speeches to the chief executives of banks, to tax executives and to newsmen in Calcutta, Shri H. M. Patel has sought to restore the perspective of his government's economic policy. With so much said of emphasis on agro-based industry, it needed to be stressed that government was aware of the role of the large sector. Shri Fernandes has also been seeking to clear the misunderstanding

Shri Patel did well to reject the irresponsible demand from the private sector for concessions. Such concessions, in the past, had only led the monopolistic trends. Government cannot any longer accept any role for ensuring adequate returns for private industry. The era of controls which had only served to give "protection" and maximise private profits should be deemed to be over. It is for the private industry either to accept new entrepreneurial challenges or just pack up and leave the economy in better hands. Shri Patel has speculated that the investors may be marking time The economic trends are not as bad as advertised A good monsoon, a down-trend in prices, slower rate of increase of money supply are all pointers to an evolving policy. Only industrial growth rate may be lagging behind—and the fault is not government's.

The Janata Party's emphasis on agriculture and agro-based industry for employment and other goals, increase in the availability of wage goods, control of inflation and removal of sectional and regional imbalances, goes with recognition of the place of organised and large scale industry in power, petroleum, fertiliser, steel, cement and engineering. But this sector cannot hope to have the kind of protection which it has so far had and which few other countries offer to industry. Investments in the right direction with a social commitment would bring in returns of a varied nature, not merely profits and dividends. The private sector in India has seldom been known for this kind of entrepreneurship and "aggressive investment policy".

Shri Patel has also done well to ask the nationalised banks to channel credit to the "tiny" sector. More branches will have to be opened. Within the next six or eight months, each block should have at least one branch. Direct credit to the weaker sections without intermediaries would lower the cost of borrowing Government funds would be used to subsidise interest rates so that the flow of bank credit to needy sectors increased—a kind of a "soft third window".

Employment and Irrigation Plans

THE INDUSTRY minister's reiteration of policy and Prof. Raj Krishna's observations about area plans have been reinforced by Shri Surjit Singh Barnala at a seminar on employment strategy. He has said that full employment will be assured in about 50 per cent of the development blocks in the next five years, through agriculture, irrigation and allied activities Priorities in planning are being recast. The design and structure of the five year plans are being changed and it will be possible to have realistic annual plans within a scheme of long-range perspective Shri Barnala has said that experience has shown that poverty, unemployment and under-employment are not likely to be solved by isolated sectoral programmes. What is now proposed is optimal use of local resources through purposive inputs of science and technology and involvement of the people

If an integral approach to problems of rural poverty is to succeed, the planning commission cannot escape thinking of an extra-departmental operational strategy.

It is from this point of view that the target of 17 million hectares to be covered by new irrigation schemes in the next five years has to be seen. Shri Barnala has spoken not only of the necessary outlays but also of the manner of their use Water management has never been easy and some kind of federal arrangement is necessary The constitutional exercises should take into account the need for even a federal negotiating agency, autonomous of the central and state governments but consisting of representatives elected by the legislatures.

Command area development would include construction of field channels, land shaping and preparation, input supply, crop planning, drainage, land consolidation and choice of different kinds and sizes of irrigation projects. New decentralised agencies outside the present administrative structures need to be created The central water and electricity authorities have to be broken into several units, which together with order similarly decentralised agencies, can constitute a new kind of area development infrastructure ; this, besides

doing a job, will also lay the basis of a wide dispersal of talent and of cultural change in the countryside. This is crucial.

Master plans for river basins with a view to tapping all available water resources much before the end of the century would also call for departure from a purely "processing" approach of specialised bureaucracies and for new national forms of thinking and action. A federal agency, associating a broad front of professional and political opinion, can make the task easier. State-level multi-disciplinary teams recommended by state irrigation ministers should be supplemented by a radical scheme of extra-departmental approach.

It is refreshing that irrigation ministers have recognised the folly of neglecting tanks in drought-prone areas. A priority programme of their renovation and checking of silting has been suggested. Low-lying areas in villages can be converted into tanks.

Of even more fundamental importance are the recommendations on pragmatic personnel transfer and training policies, delegation of financial powers to engineers, statistical support to irrigation departments, preparation of histories of major projects and social and environmental consequences of irrigation schemes. But it is doubtful if acceptance of central responsibility in various matters including cement allocation is the best way of encouraging local initiative. Target orientation would presuppose an injection of some kind of commercial culture in public sector operations.

There has been doubt about the competence of the central apex body to process schemes of a gigantic nature like the garland canal scheme and Shri K. L Rao's ideas of water transfer from surplus to deficient areas. Besides, vested interests develop in any established bureaucracy. Imagination and innovation are the first victims of career-based services. Unless the government makes the task of development "national" and not "departmental", the next twenty-five years will not be vastly different from the past twenty-five years.

"Drought proneness" in India goes with "flood-proneness". What a pity that not even a third of the surface flow of water in our rivers is used for irrigation! Arid and semi-arid areas accounting for some 30 per cent of grain production continue to be neglected in irrigation plans. Commercial methods of financing projects are repeatedly overtaken by short-sighted surrender to equally short-sighted lobbies. Even a sum of Rs. 20,000 crore is not stupendous if only there is a will to convulse the country in an ecstasy of forward movement.

The only way is to bring the people into the picture. The new planning commission is yet to show any evidence of appreciation of this major factor

Labour Law Renovation

IT IS good that state labour ministers have been able to agree on most of the recommendations of the 30 member committee about a comprehensive law on industrial relations. A bill is proposed to be placed before Parliament in the current session. Different acts dealing with trade unions, industrial employment and industrial disputes are to be integrated. Some state laws are also likely to be incorporated into the new measure. One major effort will be to make conciliation speedier as well as more effective and useful.

Security of employment, uniformity of minimum service conditions and relief during adjudication of disputes are all contemplated. What, possibly, has not been taken into account is the impact of all this on the new policy for the unemployed. Trade union economism has been a major factor of underdevelopment. Even politically-oriented trade unions have shown little concern for the vanguard role of the working class in social revolution. It is not as though a legal framework, talked about by Shri Ravindra Varma, for cordiality in industrial relations, does not altogether exist. Further refinements are always possible but the main problem is that each new genuine effort becomes the springboard of further trade union irresponsibility. Shri Varma has spoken of the "legitimate interests of workers and industry". What are these "legitimate interests"? As understood by them, these seem to be more wages, allowances and other benefits on the one hand and more profits, greater protection, never-ceasing assistance and escalating concessions on the other. There is neither the excitement of work nor the challenge of enterprise. If the caprice of the employer is to be curbed, as it should be, the total insensitivity of the workers to social responsibility has also to be tackled and tackled firmly.

The wisdom of involving government directly in industrial relations is doubtful. There could have been an independent statutory body to which implementation of a parliamentary policy could have been remitted. One hopes the energetic union labour minister and his counterparts in the states have not been stampeded into a certain course of action by the present state of industrial relations.

A basic approach to industrial relations in tune with the new employment strategy would have been more appropriate. The manner in which this particular problem has been tackled illustrates the harm of compartmentalised approaches to basic social and economic matters.

Partisanship Between Peoples

BOTH EXPLICITY and otherwise, Jayaprakash Narayan has repeatedly and abundantly made it clear what, he thinks, should be our attitude to struggles for freedom and democracy in other countries including some of our immediate neighbours. The government, of course, has been at pains to explain that JP holds no official position, in order that it may not be accused of interference in the internal affairs of other countries. This "high" principle of international "morality", one presumes, would not come in the way of our recognising that some other governments were not trammelled in this manner in openly espousing the cause of Indian democracy during the emergency.

JP himself is conscious of the sensitive nature of this issue. He does not want India to depart from diplomatic conventions. But the people, he has said, "who have only recently liberated themselves from dictatorship" will not hesitate to lend their support to the struggles for democracy elsewhere.

He has drawn the attention of dictatorial regimes to the lesson of history and asked them to give up repressive policies, restore fundamental freedoms, hold free elections, abandon the course of mass arrest and liquidation of political workers and move away from theocratic politics.

The people of India cannot pretend that they have no stake in freedom and democracy elsewhere. "Democrats of the world, Unite" should be the standard of a new international movement when the machine and the state are threatening to annihilate humanity.

Fearlessness In Administration

SHRI CHARAN SINGH has had more than one occasion in recent days to speak and write about

norms of behaviour in administration including police administration. He has also spoken with anguish about double standards in judging arrests of top administrators and men of lower status. The Shah Commission, only a few days ago, heard of how a junior government teacher—a woman—and a senior officer, more or less similarly treated during the emergency—received different kinds of solicitude in high places. Shri Charan Singh has been of the view that corruption cannot be removed unless it is dealt a mortal blow at the top echelons of government, political as well as administrative. Seeking the support of the press and other sections of society in this "gigantic and thankless" task, he has said that without this support, the Lok Pal or other vigilance devices will not be as effective as they should be.

Consistently, he has asked the public service commissions not to entertain any recommendation from politicians and others, however highly placed. It is a little refreshing to hear a home minister telling policemen not to obey orders, even from a minister, which they considered illegal. Honesty and fearlessness, besides efficiency, are more necessary in the police force than in other branches of administration. Shri Charan Singh has promised that the proposed national police commission would be asked to ensure that the police force resists illegal orders.

The question often asked is how anyone will be able to decide on legality. The answer is simple. It is each individual. The problem is not one of knowing, but one of fearing the consequence of defiance. That was why Shri Charan Singh would not blame a policeman in a circumstance of fear even in very high places. But our salvation lies only in ethical sense and preparedness to accept its consequences.

Need For a Thorough Probe

IT IS happy augury for the future course of Indian politics that two members of the AICC have asked for a highlevel probe into some recent plane accidents involving important political leaders. Shri Chavan's presence at the airport to greet Shri Morarji Desai on his return from Jorhat and Shri Brahmananda Reddy's message had already set the tone and pace of a new political ethos in the country.

The two AICC members, in a joint statement, have referred not only to the Jorhat accident but to the fact that aircraft carrying leaders like Shri Chandra Sekhar, Shri George Fernandes, Shri Biju Patnaik and Shri Bahuguna had suddenly developed faults. About the Jorhat mishap, these two congressmen have expressed surprise that this could have happened to an IAF plane.

The Times of India, after saying that the countrywide joy over Shri Desai's miraculous escape is tempered by the tragedy attending the brave members of the crew, has remarked that what the pilot executed was clearly a nose-dive not a belly-landing, suggesting that the crew might have decided to sacrifice their lives for a greater cause. The nation's gratitude to these courageous and dedicated men will be beyond measure.

We must suspend judgement till the obligatory enquiry is over. The taped record of the conversation between the pilot and the control tower may throw some light.

Even so, a lingering doubt—implicit in the commercial pilots' statement—will continue to exist whether there has been negligence, even if there was not dirty work at the crossroads. The government owes it to the people to make them feel assured that some deep conspiracy was not afoot. The threats to our nationals abroad should not also be taken to emanate from one source only. Safety of our nationals apart, unearthing of any possible mischief by people with a lot of resources is equally important.

New Direction To Education

JP's NOTE to the government stressing the priority of educational reform has come not a day too soon. "The foundations of freedom and equality have to be laid as much by education as by the reconstruction of political, social and economic institutions". He has begun at the beginning. The men who head the key institutions should be of the right kind. Their colleagues should also be men who are not "primarily careerists". Commitment to values should decide their appointments. Dead uniformity in university courses should be avoided. Universities can use resources to better purpose by division of diverse educational goals. Even in a single subject like economics, if metropolitan universities specialise in banking, for instance, provincial universities can develop agricultural economics. Massive programmes of non-formal education will also have to be undertaken. The young men and women who left college to take part in the Bihar movement should be able to get education of a kind more meaningful than what they gave up. The bureaucratic approach has frustrated early crash efforts to mobilise teachers and students. There is enough idealism in the country The disproportionate outlay on higher education should be corrected. Such education should be made self-financing, except that deserving students from economically backward families could be given loans to be repaid in instalments when they start earning. Professional education, highly rewarding, should finance itself

Referring to the brain drain—particularly the emigration of doctors—JP has said that the right facilities should be created for these specialists to work at home, particularly in the villages. Rejecting the notion of high incomes for beneficiaries of higher education, he has stressed the need of a well-conceived incomes policy. He has posed this as a challenge to our economists and social scientists. He has pleaded for special facilities for the under-privileged groups not only at the point of entry but throughout the educational carreer. The policy should be such as not to create a new elite among these groups indifferent to their fellowmen

He has asked for a national debate on these ideas as a prelude to revolutionary and enduring change within the framework of free institutions. Will our professional intelligentsia think more of these matters than of their privileges, status and emoluments?

Politics of Prices

ARISING FROM the decision on sugar policy—both distribution and pricing—is a comment from Shri Balraj Mehta in the *Indian Express,* which concludes as follows :

"A fundamental reorientation of pricing policy, which will give precedence to the requirements of social consumption and economic development over the current consumption demands of what are called "viable" groups and classes has far reaching implications. It is doubtful, of course, that a total and decisive break with the established price pattern will be

possible for the government. It will hurt far too much sections, groups and classes which constitute what may be called the viable and reliable social base not only of the present government but of the established power system and structure and will be considered politically not feasible. But at least, some element of rationality will have to be introduced and the more marked distortions and anachronism in the structure of relative prices will have to be given up with the aim primarily of minimising losses on past investments, recovering a substantial part of the cost of production of such intermediate goods as coal, steel, cement and fertilisers and eliminating subsidies which are patently monopolised by the upper income groups in urban and rural areas. The finance ministry, harassed by subsidies and lean domestic resources in its hands, is known to be keen for some adjustments in prices on these lines and is trying to caution against succumbing to populist pressures on prices The planning commission should be expected to back up this effort if its "realistic" scheme of financing developmnt is not to be wrecked by the current trend towards squandering resources in current consumption."

Subsidies, in any event, are not, as is often supposed or advertised, always for the poor and the down-trodden ; often they are at their expense.

Preventive Detention

SHRI DESAI is credited with the view that, along with the obnoxious aspects of the inglorious 42nd amendment, other legal traces of the emergency should be wiped out soon. A bill for the repeal of MISA is on the cards. Ironically, the J&K ordinance (preceded by the Madhya Pradesh one) has come in the context of a general public disapproval of detention without trial The reasons given by the state governments concerned may be sound enough There is always a threat from various kinds of sources—whatever the intentions, honourable or not so honourable—more so in the sensitive states. But the answer to these threats is more openness of polity and governance, not less. Preventive detention, in one form or the other, has been on the statute book almost since the British left (and before, of course) Charges of misuse are no longer challenged

A free society, an open society, clearly is exposed to all manner of risks Either we opt for a completely closed society or we are brave enough to face their risks Compromises lead to degradation There is no escape, in a free society, from creating in the people a stake in such a society. Honest administration, national consensus on basic issues, a firm rejection of the politics of cleverness and petty confrontation, increasing levels of openness and heightening the people's consciousness are the best ways of meeting the threats.

It is a self-deception to think that security or safety is best preserved by extraordinary police powers At best this is panic, at worst, this is an index of irresponsible politics at different levels

Farewell to Alms

THIS IS how a reporter describes the proposal to end beggary through welfare measures The 1971 census put the figure of beggars in the country at more than a million It is proposed, as reported, to combine public vigilance with humanitarian social approach to tackle this problem. Diversified institutional patterns to classify beggars as able-bodied, disabled and habitual are being thought of. Many states have laws banning beggary.

The new approach is very unlikely to be rewarding. Only two simultaneous actions can work—one, an assurance of full employment as well as homes for the unemployed, disabled and destitute ; and two, a public movement against beggars in the circumstance of such full employment.

Multinationals

THE HINDUSTANI Movement has asked for a great reduction in the share of multinationals and big business houses in the producing of soap and other consumer items Without this, all talk of encouraging the small sector will be idle. The reduction suggested is as much as 75 per cent of the present output by these big houses The method proposed is prohibitive excise.

The main point made by the Hindustani Movement is that, the big marketing network of these houses and other advantages, they can thwart any competition from the small sector.

Among the items mentioned which can be allotted to the small sector are detergents, talcum powder and toothpaste It is amazing that multinationals have been allowed in these fields at all. What is tragic is that small units, located, in small townships, have been wiped out by these multinationals. One company alone has usurped some Rs. 200 crore of production from the small sector It seems financial institutions have been underwriting the shares of these sharks

If this was self-reliance, talked about by the protagonists of the previous regime, let us have less of this self-reliance And let us have a more native and intelligible version.

Educational Concessions

Under the directives of the Ministry of Education and Social Welfare, the State Governments/Union Territories have been giving a number of educational concessions to the children of officers and men of the Armed Forces killed or disabled in action during the 1971 conflict with Pakistan, in institutions under their control.

Some of the concessions available up to and inclusive of the first degree course were

(i) Complete exemption from tuition and other fees levied by the educational institutions concerned, including charges for the school bus and the actual fares paid for railway pass or bus pass certified by Head of Institutions ,

(ii) Grant to meet hostel charges in full for those studying in boarding schools and colleges;

(iii) Full cost of books and stationery , and

(iv) Full cost of uniform where it was compulsory

These concessions were subsequently extended to the children and widows of Officers and men of Armed Forces killed or disabled in 1962 and 1965 hostilities also

However, a number of war widows belonging to rural areas could not avail these facilities as some of the schools e g central schools did not have hostels attached to them To help the children of such war widows it has been decided that their children be admitted to such schools and colleges, whether of Central Government or State Governments which have attached hostels and that some percentage of seats be reserved in the hostels for these children.

Greatness of Sardar Patel

Charan Singh

IT IS always the tragedy of great men that some signal contribution made by them to a national or international cause is so often emphasised as to obscure a whole life of striving, achievement and sacrifice.

Sardar Patel's misfortune seems to be that he planned and executed brilliantly the integration of the princely states with the Indian mainstream. In describing the Sardar as the architect of Indian unity, we do him a disservice in the sense that we ignore that this role devolved upon him as a natural culmination of a great political career, marked by determination, dedication, discipline and loyalty.

How Sardar Patel, used to a life of comfort, came under the spell of Mahatmaji is well-known. That he got the title of Sardar from his courageous leadership of the Bardoli Satyagraha is also equally known. Perhaps what is not as well known is that at the Bombay AICC at the Gowalia Tank maidan in 1945 immediately after the release of national leaders, Sarat Babu said Vallabhbhai Patel was no longer Sardar of Bardoli, he was Sardar of India.

As Chairman of the Congress Parliamentary Board, he displayed great understanding and firmness in ensuring that the Congress Ministries formed in 1937 did not lose sight of the basic goals of the organisation.

The Sardar is always called the "steel man of India". But those who have known him intimately have always spoken of his gentleness in dealing with men and affairs and of his deep humanity. Many people including Panditji and several Congressmen, had reservations about continuing the administrative tradition of the British-bred I C S. But the Sardar's attitude was one of recognition of the good work done by the officials in the crucial formative years of our independence. All the civil servants, who had worked with him, speak of him with affection as much as with deep respect.

Loyalty and self-effacement

The Sardar had a strange quality of commanding the loyalty of those with whom he worked—colleagues as well as what may be called subordinates. This was as much due to his preparedness to accept responsibilities even for the lapses of others and stand by them when they were under attack, as to his ability for self-effacement in a cause. This was the greatness of the trimvirate who led our freedom struggle. Mahatmaji, Panditji and the Sardar did not agree with one another on many things. On several matters the differences were fundamental. Yet, never once did they give the impression of a divided leadership. They were prepared to subordinate their individual strong views to a great cause. This did not mean that there was a facade of unity or any attempt to brush the differences under the carpet. The differences were fully discussed and even when they were not resolved, they were not permitted to come in the way of a dedication to a greater cause.

Even as Panditji and the Sardar accepted without question Mahatmaji's leadership, the Sardar accepted without reservation Panditji's leadership, even though he was 14 years older than Shri Nehru. His respect for and loyalty to the chosen Prime Minister were complete to the extent that when the Jaipur AICC passed a resolution against Panditji's wishes, the Sar[illegible] was the first to say that he would rather resign th[illegible] see Panditji's wishes being ignored.

This is a quality we all greatly need to imbibe in [illegible] political life today, when the nation seems to be [illegible] the crossroads of history and is beset with a vari[illegible] of bewildering social, economic and political problem[illegible] Even if we have fundamental differences with o[illegible] another in the same party or between different parti[illegible] we should learn to discuss them fully and also wo[illegible] unitedly for a great national cause. The only cond[illegible] tion we should insist upon is bonafide acceptance [illegible] the imperatives of a democratic polity, seeking [illegible] bring about a non-exploitative egalitarian socie[illegible] based on human values, honesty and burning passi[illegible] for serving the down-trodden.

The greatness of men like the Sardar was the[illegible] vision of India and her future. For that cause, the[illegible] would compromise everything. What they would n[illegible] compromise was the country's integrity and i[illegible] dependence and its democratic development.

New Administrative Culture

Shri Jaya Prakash Narayan has said that if the Sard[illegible] had lived he would have fashioned a new administra[illegible] tive culture. I fully agree with J P. Our best tri[illegible] bute to the Sardar would be not only to preserv[illegible] India's integrity and democratic structure but to in[illegible] duce in the administration a new culture of efficiency selflessness, incorruptibility, discipline and fearles[illegible] ness. The Sardar would have been the unhappies[illegible] man to see that an administration, which he had don[illegible] so much to bring into being, was overtaken by demo[illegible] ralisation during the emergency. Equally distress[illegible] ing is the extent of corrupion in our public lif[illegible] political, administrative and professional. We mus[illegible] work objectively for a new administrative system wher[illegible] the scope for corruption will be greatly reduced, i[illegible] not eliminated, and where casteism will not dominat[illegible] the thinking of the senior civil service, generalist o[illegible] specialist.

It should be our common endeavour to imbibe fro[illegible] the Sardar the qualities of self-effacement, discipline loyalty, determination and, above all, uncompromis[illegible] ing patriotism.

Sardar's Work in Gujarat

Prabhudas Patwari

ON THE death of Sardar Vallabhbhai Patel, o[illegible] 15th of December 1950, Shri Vinoba Bhave befor[illegible] a gathering of villagers at his ashram, observed tha[illegible] "a towering personality of the eminence of kin[illegible] Janaka has passed away from our midst. Amids[illegible] palatial glitter and royal pomp he had lived a detache[illegible] life of King Janaka. Due to his presence in th[illegible] government, the people felt that the ship of the countr[illegible] was safe in his hands." This, to a degree epitomise[illegible] Sardar's character and also refers abstractly to thos[illegible] services of the Sardar at the altar of Mother Bhara[illegible] that brought him a perennial name.

In all humility, when I think of the Sardar of th[illegible] later twenties when he had galvanised into life th[illegible] entire peasantry of the Bardoli taluq to giv[illegible]

ureaucracy one of the most decisive fights of the day with the matchless weapon of non-violence, I feel too hat it was God's abundant mercy upon me to be able o devour with avidity those stirring sermons of the Sardar that instilled vigour and heroism in people ike a magic touch and transformed their timidity nto real valour. Like Gandhiji, Sardar made men ut of clay.

SYSTEMATISED RELIEF

Sardar's work in the relief field is practically an nknown matter outside Gujarat. But in that, he ook special delight and it will be truer to say that is through this service of the *daridra Narayana* that ardar derived his superhuman strength to serve the ational cause.

It may rightly be said that the Sardar was a pioneer f systematised relief work in Gujarat. As a Munici- al Councillor (1918), amidst the outbreaks of plague nd influenza, the Sardar would rather be by the side f people than leave the city for safety. Barrister Vallabhbhai of those days used to walk from *cherri* o *cherri* to give a word of comfort to the afflicted eople and cheer their sunken hearts. Can one icture the Sarder opening even temporary hospital or providing medical relief to the plague stricken but this is what Sardar did it without any ostentation.

The flood relief operations organised by the Sardar overed practically the whole of Gujarat when it was aid low by the unprecedented monsoon rains lasting ontinuously for almost a week (1927). On the mid- ight of the day when rains began to pour in torrents, he Sardar was sleepless. Coming out of his house, e walked towards a friend's house in pitch dark and ursting rains and took the friend with him. They ent round all the vulnerable spots of the city, and his done, they went straight to the Municipal Engi- eer, and waking him from his sleep, took him with hem to the Municipal Office. In no time, the staff ere summoned to duty and speediest steps were aken for the drainage of rain water and the city was aved from further ruination This was the exemplary ense of civic duty in the Sardar

Gandhiji was then convalescing at Bangalore He ired to the Sardar that he had no strength in him to ove from place to place and yet he would come if he Sardar approved of it To that Sardar replied to he effect that if he would wish to test them how far hey have imbibed his teaching of self-help and co- operation, better would it be if he could stay over here and recoup himself And Gandhiji heeded to he Sardar's advice, for he had abundant faith in the Sardar's innate and profound capacity to overcome his calamity on Gujarat. The Sardar's relief work ad then reached the remotest and far-flung villages f Gujarat. The efforts were so systematic and orga- ised that he could restore normalcy in Gujarat hardly n two months.

INSPIRING STORY

The Government was stunned at the promptness and horoughness of this effort, and thanks to the Sardar's itiative, it felt impelled to earmark funds to the ine of Rs two crore and more in the form of cheap ans and gratuitous money for the reconstruction of ouses of the thousands of homeless. The full story this mission of mercy will take pages. But suffice to say here that this episode is a most inspiring page his life-story and it had left its imprint on the life Gujarat to such an extent that whenever such lamities overtake Gujarat that distant scene of 1927 becomes vivid to our eyes and inspires us to render service to the people in distress.

Vallabhbhai

VALLABHBHAI Jhaverbhai Patel, one of the six children of Jhaverbhai Patel and Ladbai, was born on 31 October, 1875 at Nadiad in the Kheda district of Gujarat. The family was an agriculturist one, of the Lewa Patidar community. It was poor and had no tradition for education. Vallabhbhai's childhood was spent away from books in the simple atmosphere of his village home He received his early education at Karamsad and then at Patlad, a small town, some eleven km away. He matriculated from the Nadiad High School in 1897. He passed the district pleader's examination three years latter and set up as a lawyer at Godhra.

He moved in 1902 to Borsad a town in Kheda where his elder brother, Vithalbhai Patel, had set up practice and had more work than he could cope with singly. Vallabhbhai became quite popular as a defence lawyer. He became such a terror to the authorities that the magistrate's court was transferred from Borsad to Anand. But the court was transferred back to Borsad after a year. The reason for the great success of Vallabhbhai in the criminal cases was not so much his knowledge of the intricacies of law as his abundant commonsense and his knowledge of human nature. He started for England in 1910 and joined the Middle Temple He took his study so seriously and conscientiously that he topped in Roman law, securing a prize, and was called to the Bar at the end of two years On his return to India in 1913, he set up practice in Ahmedabad and made a great success of it

It was in 1917 that Patel came in contact with Gandhiji, having been impressed by his leadership in the Champaran Satyagraha. In 1917 he was elected for the first time as a municipal councillor in Ahmedabad From 1924 to 1928 he was chairman of the municipal committee. In 1917 he was also elected secretary of the Gujarat Sabha, a political body which was of great assistance to Gandhiji in his campaigns Vallabhbhai became one of the comrades of Gandhiji in solving the labour trouble of Ahmedabad He suspended his lucrative practice and plunged into the national struggle

The association with Mahatma Gandhi became closer during the Kheda Satyagraha in 1918, which was launched to secure exemption from payment of the land revenue assessment since the crops had failed. Gandhiji said that if it were not for Vallabhbhai's assistance "this campaign would not have been carried through so successfully"

The five years from 1917—1922 were years of popular agitation in India Vallabhbhai left his practice for good and gave himself up wholly to political and constructive work Then came the Bardoli Satyagraha.

THE BARDOLI SATYAGRAHA

There used to be a periodic assessment of land revenue in Bardoli taluk after every thirty years. After a survey by the settlement commissioner the land revenue was increased by 30 per cent. This sudden arbitrary increase hit heavily on the smaller farmers So a group of peasants approached Vallabhbhai. Patel wrote to the governor to postpone the recovery of the revised land revenue The request was turned down. Now Vallabhbhai devoted all his

time and energy to organising, uniting and rousing the people.

The epic struggle of Bardoli launched in 1928 constitutes one of the most glorious chapters in the history of India's struggle for freedom. It was a grim and bitter fight. The basic traits of Sardar Patel's personality, as highlighted by this struggle, were an indomitable will and perseverance, a fine sense of strategy and calculation, complete identification with the espoused cause, total disregard of sentimentalism and an iron discipline imposed upon himself. Bardoli, in fact, was a unique personal triumph for Vallabhbhai who was given the title of 'Sardar' by the nation. This achievement at Bardoli brought him to the forefront of all India leadership. Vallabhbhai was the first of the national leaders to be arrested in the famous Salt Satyagraha launched by Gandhiji In March 1931 Vallabhbhai presided over the 46th Session of the Indian National Congress held at Karachi which was called upon to ratify the Gandhi-Irwin pact after Bhagat Singh had been sentenced to death. It was in that tense atmosphere that the Sardar guided the deliberations. The Karachi session was notable for the adoption by the Congress of fundamental rights which were later enshrined in the Constitution of India. The failure of the Round Table conference found Vallabhbhai Patel lodged with Gandhiji in the Yeravada Jail where they were together for sixteen months from January 1932 onwards. Vallabhbhai spent another year in the Nasik Jail

In the Wider Arena

After the withdrawal of the civil disobedience movement in 1934, the Gujarat Vidyapith was revived. Vallabhbhai was made its Vice Chancellor and later, after Gandhiji's death, Chancellor. He was among the front rank leaders who appreciated Gandhiji's intention of resigning from the Congress in 1934 to devote himself to the revival of village industries. After the Bombay Congress the Sardar extensively toured India This helped the Congress win a resounding victory in the elections for the central assembly. Vallabhbhai was in overall charge of the Congress election campaigns both in 1937 and 1946 and established an effective machinery not only for winning the elections but also for co-ordinating the work of the ministries and ensuring that the congress policies were implemented faithfully.

When the Congress accepted office in 1937, Sardar Patel became the chairman of the parliamentary subcommittee of the party to guide and control the activities of these ministries. In this capacity he had to co-ordinate the work of the ministries, deal firmly with opportunists and recalcitrants in its ranks and guard against the machinations of the governors Vallabhbhai Patel was arrested on 17 November, 1940 for individual civil disobedience launched by Gandhiji He was released on 20 August, 1941 on grounds of health The famous Quit India resolution was passed in Bombay on 8 August, 1942 Vallabhbhai, along with other members was arrested on 9 August, 1942 and detained in the Ahmednagar Fort. He was released on the eve of the first Simla Conference As one of the chief negotiators of the Congress he made a valuable contribution to finding a peaceful constitutional solution to the problem of India's independence.

In September, 1946 when the interim government was formed, Sardar Patel became the Member for Home Affairs and Information and Broadcasting. When India attained independence, he became the Deputy Prime Minister and also assumed charge the newly created ministry of states.

Reorganisation of States

The Indian nation will remember with gratefuln Sardar Patel's work in reorganising the Indian sta and integrating them with the Indian union. As t minister in charge of states, he was called upon tackle the intricate and baffling problem of the sta integration. There were 560 princely states to b integrated with the Indian Union. He accomplish this task with the ruthless efficiency of a great a ministrator. Except the rulers of Junagadh ar Hyderabad, the remaining Indian princes read th writing on the wall and gracefully cooperated wi the fast moving times The geographical position Junagadh made it obligatory on the ruler to acce to the Indian Union. Junagadh was merged wi Saurastra Hyderabad was a hard nut to crack Th Nizam, was considered to be the richest man India. He issued a *firman* on 11 July, 1947 that o the lapse of paramountcy on 15 August, 1947 Hyderabad would become a sovereign independen state. After some consideration when reason faile with Nizam, Patel was convinced that police actio was the only solution Indian forces marched int Hyderabad territory on 9 September, 1948 to put a end to the threat to the security of India. On 2 November, 1949 the Nizam accepted the soverei of India

The merger of several adjoining states, with the varied and diverse problems, into different units wa a task demanding all the best from an administrato and statesman Sardar Patel first turned his atten tion to the states of Orissa and then to the states o Rajputana and Kathiawad The 222 states of Kathia wad heeded Patel's advice and on 15 February, 194 the united states of Kathiawad was formed No this movement of merger gathered speed and ve soon the states of Rajasthan, Punjab, Himachal Pra desh and central India merged themselves into unio of Rajasthan, Pepsu, Saurastra, Himachal Prades and Travancore and Cochin. Later on Pepsu wa merged in East Punjab, Baroda and Kathiawad int Bombay, Indore into Madhya Pradesh Travanco and Cochin became Kerala. Mysore remained a sepa rate province This completed the work of integratio without any bloodshed but with the goodwill of th people

He sorted out the problems of partition, restore law and order and dealt with the rehabilitation o thousands of refugees with great courage and fore sight. He formed a new Indian Administrativ Service, to provide a stable administrative base to ou new democracy Vallabhbhai devoted his organisa tional talent and energy to achieve the difficult task He was thus one of the chief architects and guardian of India's freedom and his contribution towards con solidating the freedom of the country remains un rivalled

His death at Bombay on 15 December, 1950 re moved from the Indian scene one of the most ou standing figures of modern Indian history.

Work is undoubtedly worship but laughter is li Anyone who takes life too seriously must prepa himself for a miserable existence Anyone wh greets joys and sorrows with equal facility can rea get the best of life.

Sardar Pat

ROLLING PLAN

A Step Towards Democratisation

DR. J. DUBASHI

IF YOU are driving on a straight road with very light traffic, all you have to bother about is your oot on the accelerator. You can maintain a steady peed without worrying too much about the other raffic and also be pretty certain of arriving at your estination in time.

On the other hand, if you have to drive through eavy traffic on a busy road crowded with all kinds f vehicles from bullock carts to oil tankers, speed the least of your worries. You have to keep your yes on the brakes, the gears and the accelerator, and lso watch the traffic signals You are in fact not ntirely your own master and there may be times when ou have to give way to others.

This is, in rather simple terms, the main difference etween the old type of planning we used to have nd the new concept of rolling plan that the Janata Government has now introduced This is not such a evolutionary thing that it is made out to be; in fact, nder the circumstances growing and mixed economic, raffic, this is the only sensible approach A rolling lan is designed to keep track of the situation as it hanges from time to time, from year to year, in fact, nd make suitable amends and all alterations as one oes on, without losing sight of the ultimate destination, but also without getting stalled in the middle, s has happened a number of times in the past.

When planning began in this country, things were retty simple. There was only one big steel plant, nstead of the present five. There was only one nedium-sized fertiliser factory instead of at least a lozen large ones today There was no oil refinery—ow there are eight. There were power stations only n the large cities—now we even have atomic power tations. You can see, therefore, how the traffic has ncreased and why one man—or even a group of people-sitting in air conditioned rooms in the planning commission cannot take a decision that can be binding or the next five years. Life today is much more complicated and many things are beyond one's control. For instance, when the crude oil prices shot up fourfold in 1973, the entire planning in this country collapsed. The fifth five-year plan had to be scrapped and it took three long years to prepare another one In the meantime, prices began rising—they went up by 30 per cent in a single year—but since the government was committed to the plan, there was no check on spending. If we had a rolling plan then, the plan programmes would have been immediately revised and spending brought under control. If we had introduced the system of flexible planning five years ago, we would not be in such a mess today.

AWAY FROM RIGIDITY

India is still basically an agricultural country. Nearly hree-quarters of our people are engaged in farming nd roughly half our national income, that is, the ersonal income of all of us added together, is still erived from rice, wheat, jowar and similar farm products. Now, when there are droughts, and we have evere droughts at least once in five years, there is a sharp fall in income from this source, with the result that the entire pattern of resources is effected. However, since the planners are committed to their plan and demand their pound of flesh, the investment pattern cannot be touched. In the absence of real resources, the government is forced to resort to deficit financing by printing paper money which is not backed by anything tangible and is, therefore, useless money. The net result is that prices go up, and everybody suffers, particularly the poor people and people in rural areas.

We should not, therefore, be surprised at the results that the old kind of planning has achieved. While national income—real income, that is—has gone up two and a half times since planning began, prices have gone up nearly four times, an extraordinary achievement indeed. If there had been rolling plans, or what we may call, developing plans, the government would have been forced to cry halt to unnecessary spending out of non-existent resources created by keeping the currency note printing presses busy working overtime. The government's hands are tied by the rigid plans which do not permit any alteration to suit the changing circumstances.

There is also another point which those who have never been involved in the planning mechanism may not be aware of Who draws up the five-year plans ? The planning commission But the planning commission is a huge body which occupies a whole five-storeyed building in Parliament Street in New Delhi next to the Reserve Bank There is a small group of economists who sit down with their slide rules and work out targets for different products for the next five years, and even for the next fifteen years. These people have very little direct experience of industry or its working and do not normally come into contact with people who actually work in industry and who have a feel of the market Their forecasts are exercises in imagination which, of course, they are very good at But it is one thing to fiddle with nice-looking formulae on paper, and quite another to convert imagination into reality. You will be surprised to learn that nowhere in the world have long-term projections ever come out right in practice.

In England, there was once an attempt to work out detailed projections by computer, but the results were so farcical that they became the laughing-stock of the country No wonder, the first plan the British ever drew up was dropped like a hot brick

IMAGINATION AND REALITY

The new concept of the rolling plan will not do away entirely with the slide-rule boys in the planning commission but it will have its ears cocked towards the actual shape of the economy as it develops from time to time. A plan that ignores feedback information from the people—for whom the plan is actually meant—is self-defeating. In fact, it goes against the grain of democratic functioning Ordinary people who buy and sell in the open market should have as much say in the formulation of the plan as the so-called experts The second plan was drawn up by one man, Prof P. C. Mahalanobs, and it was pushed through very much against the opposition of quite a few people, including Congress leaders like Dr. B. C. Roy and economists like Prof. C N. Vakil. It was high time that the planning process was democratised and left to a handful of the so-called experts. War, they say, is far too serious a matter to be left to generals, planning is also far too important a matter to be left to planners.

The rolling plan is a compromise between imagination and reality and to that extent it will take into account both the long-term perspective and short-term day-to-day problems. The current old-style plan which is now in its fourth year will be chopped off at the end of the financial year, that is, by April, 1978, when the first year of the new rolling plan will begin. The new plan is likely to have a horizon of five years. But a new annual plan will be added.

At the end of every year, with firm targets for the first year and flexible targets for the next four years—this concept is actually in use in most large companies with world-wide interests and operations, and with sales that sometimes exceed India's national income. Our own defence ministry also follows the rolling plan concept. Even in the old-style planning, the planners conveniently took a plan holiday when things became a little tough, as they did for three years from 1966 to 1968 which happened to be the very first three years of Smt. Gandhi's prime ministership. In the new system, there will be no plan holidays; in fact, the planning commission will have to be quite alert and function with much greater discipline than before So, the plans will become flexible, and for very good reasons, the planning process itself will be much more disciplined This will increase the efficiency of planners all round.

PEOPLE, NOT THINGS

The new concept has come at a time when very objectives of planning are changing. All plans so far have been concerned with things—pow steel, machinery, fertilisers etc. rather than with pe ple. While the country may now be economica speaking more powerful than before, the people as whole have not benefitted from the plans, as the acc has not been on mass benefits. It is well known t there are more poor people today than were wh the plans began. Something, therefore, has go wrong, which the rolling plans with their accent employment are expected to put right. What is, af all, the use of big, grandiose plans if the final res is increasing poverty among the people and, at same time, growing power in the hands of a hand of people in the government ? The new-style plann will bring the people much nearer the governme and *vice-versa*, which is as it should be. The pri aim of the new government is to build an open socie and there cannot be an open society without an op economy, that is, an economy where decision-mak is also an open process and is not left in the hands a few experts We have had too many experts for too long; let the people have a say for a change. □

Multinationals and India

IN THE past quarter of a century, the world has witnessed dramatic development of multinational companies into a major phenomenon in international economic relations. Their size and geographical spread, multiplicity of activities, command and generation of resources around the world and the use of such resources to further their own objectives rival, in terms of scope and implications, traditional economic exchanges among nations

In a study entitled "Multinational Corporations in World Development", the United Nations defined multinational corporations as "enterprises which control assets—factories, mines, sales offices and the like—in two or more countries. This broad definition includes all foreign companies which operate in India through a branch or an Indian subsidiary

Multinational Corporations account for one-fifth of the world's output, excluding the centrally planned economies. Their production in recent years has been growing at the rate of ten per cent a year nearly twice the growth rate of the world output, and half as much as the world trade. The estimated level of production of the multinationals exceeds 750 billion dollars a year, which is greater than the gross national product of any country other than the United States Their direct investment is about 300 billion dollars, nearly half of which is from the United States. They are spread far and wide. In 1974, developing countries accounted for about one-third of the book value of foreign investments, as against one-sixth of the world's domestic product and one-fifth of the world exports.

SIZE, NATURE AND OWNERSHIP

Multinational Corporations (MNCs) are generally large-size firms with annual sales running into hundreds of millions of dollars. More than 200 multinational corporations have surpassed the one billion dollar mark. H. V. Perlmutter observes in his book, "Towards A Theory and Practice of Social Architecture" that by 1985 about 300 large multinationals will account for half the world's total industrial producti

Most of the multinationals enjoy predominantly o gopolistic market positions and are characterised by importance of new technologies, special skills or p duct differentiation and heavy advertising which s tain or reinforce their oligopolistic nature by mak entry of competitors more difficult.

The large MNCs have many foreign branches a affiliates Although almost half of some 7,300 MN have affiliates in one country only, nearly 200 of th have affiliates in 20 or more countries. In all, U firms account for about a third of the total number foreign affiliates. The U S. together with compan based in the United Kingdom, the Federal Republic Germany and France, account for over three-quart of the total foreign affiliates. Of a total estimat book value of foreign investment of about 165 billi dollars most of which is owned by MNCs, the U accounts for more than half; over four-fifths of t total is owned by the four countries

While the network of MNCs is world-wide, the bu of their activities is located in the market econom of the developed countries. Over two-thirds of the es mated book value of foreign direct investments a located in this area. Although developing countr have received only about a third of this total, t presence of foreign MNCs in these countries is ger rally of much greater significance relative to the s of their economies. Among developing countries, t western hemisphere has attracted an estimated 18 p cent of the total stock of foreign investment, Africa per cent and Asia and Middle East five per cent a three per cent respectively.

Manufacturing is at present the major activity MNCs. It represents a little more than 40 per ce of the total estimated stock of foreign direct investme of the main developed market economies. Petrole accounts for 29 per cent, mining and smelting 7 p cent and industries 24 per cent. Whereas

developing countries half of the estimated stock of investment is in extractive industries and a little more than a quarter in manufacturing, in developed market economies half of it is in manufacturing and about 30 percent is in the extractive industries.

By and large, MNCs exercise effective control over their foreign affiliates through complete or majority ownership, although at times such control can be exercised from a minority position as in the case of Japanese MNCs, where a somewhat more sizeable proportion of the affiliates are minority-owned ventures. About 80 per cent of the United States affiliates and 75 per cent of the United Kingdom affiliates are either wholly-owned or majority-controlled.

Only a few developing countries have a stock of direct foreign investment of more than one billion dollars. These include Argentina, Brazil, India, Maxico, Nigeria, Venezuela and five groupings of Caribbean Islands. These countries account for 43 per cent of the total stock of investment in developing countries, which is roughly the same proportion as that of their combined gross domestic product to the estimated total for all developing countries. In 12 countries in Africa, the Middle East and Latin America, the investment in either petroleum or mining exceeds 200 million dollars. More than 200 million dollars is invested in manufacturing in Argentina, Brazil, India, Mexico and Philippines. In India and Malaysia, investment in agriculture exceeds 200 million dollars.

U.N. Study

In recent years, there has been a growing concern over the operation of MNCs in the developing countries. The reasons why MNCs have come into worldwide attention was the exposure of an attempt by one of the largest MNCs to overthrow the elected government of Chile, followed by the U.S Senate Committee's exposure of the underhand dealings of the Lockheed Aircraft Corporation which led to the fall of the government in Japan. These incidents have created a fear among the developing nations and an apprehension about the financial power of the MNCs.

In 1973, the United Nations by its Resolution No. 1721 took note of the growing size of the multinationals and recommended a study in depth of the rise of MNCs and its impact on trade and development of other countries in all its interconnections. A group of eminent persons led by Shri L. K. Jha submitted a report on the subject in June 1974. The Department of Economic and Social Affairs of the United Nations also brought out a working report on "Multinational Corporations in World Development"

Important points made in the report by the group of eminent persons were :

(a) international corporations are organisations largely beyond the control of any single government ;

(b) their overall goal is worldwide profits without regard for what is best for an individual country ;

(c) the interests of the country where a subsidiary is established for the development of export markets are subjected to the market interests of the parent company ;

(d) parent companies do not make the most modern technology available to their subsidiaries ; and

(e) international corporations prevent the growth of locally-owned enterprises by aggressive and unfair competition.

That the developing countries are generally afraid of the activities of MNCs was also evident at the 21st Commonwealth Parliamentary Conference held in New Delhi from October 21 to 25, 1975. Deighton F. Grifty of Barbados pointed out that MNCs "did not regard themselves obligated to the interests of the region they were located in. They neglected training of the local people for top management position". There is also an "inherent danger in the existence of multinationals because at the time of crisis, these corporations were capable of diverting vast sums of money from one area to another which could bring about the collapse of the economic system".

Limcho Hock (Malaysia) pointed out that there was a genuine fear in south-east Asian countries that their economics might be controlled by MNCs : "Some MNCs operated in dubious ways and bribed politicians. In joint ventures, these corporations had only 40 per cent but their decisions were always over-whelming. Developing countries should exercise greater control to minimise the danger posed by such corporations to their economy and sovereignty".

The three-day seminar on MNCs which ended in Nagpur on 2 January 1977 also agreed that MNCs should not be allowed to go beyond the scope prescribed by host countries.

MNCs in Our Country

MNCs operate in India in two ways : (a) through branches established in the country and (b) through Indian companies which are subsidiaries of foreign companies which held more than 50 per cent of the paid-up equity capital.

There were 540 branches of MNCs operating in 1973-74 in India, the MNCs being incorporated in 34 countries outside India There were 482 branches of MNCs on 31 March 1977. Of these as many as 319 were branches of U.K -based companies U S - based companies had the second largest number of branches—88. Japanese, West German, Swiss, French and Canadian companies came next with 21, 12, 11, 8 and 7 companies respectively.

The assets of all branches of foreign companies in India at the end of 1973-74, aggregated about Rs. 1,790 crore. The British and the American based companies had the bulk of the assets with U.K.-based companies accounting for Rs. 1238.5 crore. Branches of companies of other countries with sizeable assets were Yugoslavia (Rs. 52 6 crore), Bahama Islands (Rs. 27 crore), Netherlands (Rs. 25.7 crore), Japan (Rs. 23 crore) and France (Rs. 22 9 crore).

Out of 540 branches operating in India in 1973-74, as many as 163 came under the broad head of commerce. Branches in the field of agriculture and allied activities numbered 115, business services, 87 and processing and manufacturing 82 These four industrial groups thus accounted for 447 or nearly 83 per cent of the total number of branches. Transport, communication and storage had 39 branches and construction and utilities 33. There were seven branches in mining and quarrying and 14 in personal and other services. Readers Digest Private Ltd. is the only multinational company operating in the field of journalism.

Indian Subsidiaries

There were 195 and 188 subsidiaries of foreign companies in India at the end of 1972-73 and 1973-74 respectively, and most of these were incorporated in the U.K. which had 131 branches. There were 171 subsidiaries of foreign companies as on 31 March, 1976.

The total assets of Indian subsidiaries amounted to Rs. 1363.7 crore at the end of 1973-74. Of this, the lion's share, that is, Rs. 829 crore or 60.7 per cent was commanded by the subsidiaries of U.K. Assets of subsidiaries of U.S., Canada, Switzerland and West Germany were Rs. 176.9 crore, Rs. 85.1 crore, Rs. 75.4 crore and Rs. 66 crore respectively, at the end of 1973-74.

As many as 137 subsidiaries or about 73 per cent of the total number were operating in the broad sector of processing and manufacturing with assets worth Rs. 1,255 crore. The next highest number of subsidiaries were in commerce—30, followed by transport and communication—23.

Majority of the Indian subsidiaries had assets less than Rs. 5 crore in 1973-74. There were 53 subsidiaries each with assets less than Rs. 50 lakh, and they accounted for 28 per cent of the total number of subsidiaries but their assets amounting to only Rs. six crore formed 0.4 per cent of the total assets of all subsidiaries. On the other hand, there were only 18 subsidiaries which had assets more than Rs. 20 crore and their total assets aggregating to Rs. 763 crore, accounted for nearly 56 per cent of the assets of all subsidiaries.

Profits before tax (PBT) of 180 subsidiaries in 1973-74 amounted to Rs. 195 crore. The ratio of PBT to assets and that of PBT to turnover for these subsidiaries worked out at 14.3 per cent and 9.3 per cent respectively.

Export Performance

A recent study on the export performance of Indian companies with foreign holdings was conducted by the Economic Times Research Bureau which looked at the export performance of companies with majority foreign holding in 1973-74 and 1974-75 in context of the guidelines issued by the government of India regarding the dilution of equity participation by foreign companies. The study showed that per unit realisation from the non-traditional manufacture (including government incentives for exports) in most cases was less than the realisation from the Indian market.

Exports constituted a little less than five per cent of the aggregate turnover of 46 companies with foreign holdings for which comparable data was available for the two years—1973-74 and 1974-75. In 1974-75, only four of these 46 companies had a ratio of exports to total sales of more than 10 per cent, the highest of such ratio being 20.6 per cent. Most of the companies operated at a ratio of less than or equal to 5 per cent for exports to total sales.

It is noteworthy that a large number of the companies under study had been subjected to the export obligation schemes of the government of India and, by the known records, have not fulfilled their export obligations to the extent expected. The government of India's import trade control policy, which provides for severe cuts in import licences to business units in a number of industries if the units export less than five per cent of their output, has, however, forced most multinational companies to export more.

Foreign Exchange Regulations

Under Section 29 of the Foreign Exchange Regulation Act, it is obligatory for all branches of foreign companies operating in India as also for Indian companies with 40 per cent and above foreign holdings to obtain general and special permission of the Reserve Bank of India to continue their existence.

On 1 January 1974, the Reserve Bank issued certain guidelines. These were :

(a) branches of foreign companies will be required to convert themselves into Indian companies ;

(b) branches and companies engaged in manufacturing activities in sophisticated areas in which India did not have indigenous know-how and which were predominantly export-oriented will be allowed to continue on the basis of the existing approvals, subject to Indian participation being not less than 26 per cent of the equity of the company ; and

(c) companies engaged in trading activities or in manufacturing activity will be required to bring down their foreign holding to 40 per cent.

Though some units had paid not much attention to the FERA guidelines, quite a number of units, including MICO, Philips, Bayer, India Aluminium and Associated Bearings, reduced foreign holdings as a result of expansion and diversification of business. Some companies including Brooke Bond, Hindustan Lever, Metal Box and General Electric are in the process of diluting the share holding by diversification of business. During the last three years, about 33 foreign-owned companies entered the capital market through the process of additional equity issue or disinvestment of share held by the parent companies. Some companies diluted the foreign holding by merger.

Government Policy

The policy of the government is to ensure that operations of foreign companies as also that of indigenous concerns conform to the overall socio-economic policy of the country and their activities including their size of operations are regulated within the policy guidelines announced by the government from time to time All foreign companies are also subject to the discipline of industrial licensing even in areas where exemptions are available to other categories of industries. Cases of excess production are being brought before the licensing committee for a decision on a case by case basis In cases where it is established that the capacity installed by the company was more than licensed capacity and this resulted in production in excess of licensed capacity, suitable action will be taken as permissible under the law.

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6. **Financial Express, 22 May, 1974, p. 5.**

I may have thought the road to a world of free and happy human beings shorter than it is proving to be, but I was not wrong in thinking that such a world is possible, and that it is worthwhile to live with a view to bringing it nearer.

—Bertrand Russell

Towards Abolition of Untouchability

THE CONSTITUTION of India ensures every citizen justice—social, economic and political, liberty of thought, expression, belief, faith and worship and equality of status and opportunity. It aims to promote among the citizens fraternity assuring the dignity of the individual and the unity of the nation.

In realisation of these noble goals, the practice of untouchability was prohibited. Article 17 of the Constitution says "Untouchability is abolished and its practice in any form is forbidden." The enforcement of any disability arising out of 'Untouchability' shall be an offence punishable in accordance with law. Article 15(2) prohibits the discrimination in the use of public utilities on the grounds of religion, race, caste etc. It states that no citizen shall, on grounds of religion, race, caste, sex, creed, place of birth or any of them, be subject to any disability, liability, restriction or condition with regard to (a) access to shops, public restaurants, hotels and places of entertainment, or (b) the use of wells, tanks, bathing ghats, roads and places of public resort maintained wholly or partly out of the state funds or dedicated to the use of the general public.

The Constitution also prohibits discrimination on the ground of caste in matters of public employment. Article 16(2) lays down that no citizen shall on the grounds of religion, race, caste, sex, descent, place of birth, residence or any of them, be ineligible for or discriminated against in respect of any employment or office under the State.

Article 338 of the Constitution provides for the appointment of a special officer for the scheduled castes and scheduled tribes who is to investigate all matters relating to the constitutional safeguard Article 340 also provides for the appointment of a commission to investigate the conditions of socially and educationally backward classes.

Mahatma Gandhi's Role

Apart from these constitutional provisions for the protection of the interests of the backward classes, there have been many social reformers like Swami Vivekananda, Raja Ram Mohun Roy, Dayanand Saraswati, Rabindranath Tagore and Mahatma Gandhi who did yeomen work for the cause of these socially backward people.

Mahatma Gandhi was the champion of the cause of these people. It was he who first used the word "Harijan" for the scheduled castes. Instead of calling them "untouchables", he called them "men of God".

Mahatma Gandhi did pioneering work for the upliftment of these people. He campaigned unceasingly against untouchability through the press and platform. Through his weekly *Harijan*, he tried to educate the people so that the practice of untouchability might be removed from the soil of India. Gandhiji asked the so-called caste Hindus to clean latrines and himself undertook the task on many occasions so that the stigma could be removed from the Harijans who had to perform this task. He even adopted a Harijan girl as his daughter and lived in Harijan quarters on his tours. In Delhi, the bhangi colony was his temporary headquarters.

In addition to abolishing untouchability, Article 17 of the Constitution also prescribed that Parliament would make such offences punishable as might involve enforcement of disabilities connected with untouchability. Accordingly, the Untouchability (Offences) Act was enacted on 8 May 1955 prescribing punishment for the practice of untouchability. This Act provides penalties for preventing a person, on grounds of untouchability, from entering a place of public worship and offering prayers or taking water from a sacred well or spring. Penalties are also provided for enforcing any kind of social disability such as denying access to any shop, restaurant, public hospitals or educational institution, hotel or any place of public entertainment; or denying the use of any road, river, well, tank, watertap, bathing ghat, cremation ground, sanitary convenience, *dharmashala, sarai* or *musafirkhana* or utensils kept in such institutions and hotels and restaurants. The Act prescribes penalties for enforcing occupational, professional or trade disabilities, or disabilities in the matter of enjoyment of any benefit under a charitable trust, in the construction or occupation of any residential premises in any locality or in the observance of any social or religious usages or ceremony.

The Act also lays down penalties for refusal to sell goods or render services to a person on the ground of untouchability; for molesting, injuring or annoying a person, or organising a boycott of, or taking any part in the ex-communication of a person who has exercised the rights accruing to him as a result of the abolition of untouchability.

Higher penalties have been prescribed for subsequent offences For purposes of awarding punishment, incitement or abetment of the offence is treated in the same manner as the commission of the offence. The offences under this Act are cognisable and the onus of proving innocence is on the accused

Elayaperumal Committee

Ever since the Act came into force, there was criticism about the effectiveness of the Act. The Commissioner for Scheduled Castes and Scheduled Tribes also pointed out that the punishments awarded under the Act were too few and too inadequate. In view of this criticism, the Government appointed a Committee on Untouchability and Economic Development of the Scheduled Castes under the Chairmanship of Shri L. Elayaperumal in 1965, which was asked to make recommendations for amending the Act. In its Report submitted in 1969, the Committee noted the inadequate and ineffective enforcement of the Act. The offences were committed with impunity. More often than not, the victims of the practice of untouchability would not lodge complaint for fear of social reprisal and deterrent economic consequences. The Harijans would be beaten up, their children given blows and women assaulted. The landlords, money-lenders and rural oligarchs would not give them work on full wages, or just not give them work and resort to their boycott to bring them under their socio-economic subordination. The Committee recommended the establishment of an enforcement machinery, and made proposals for plugging the loopholes and lacunae in the statutory provisions.

In pursuance of its declared policy, the Government of India decided to implement the recommendations of the Elayaperumal Committee. Accordingly, the previous Act was amended comprehensively by the Untouchability (Offences) Amendment and Miscel-

laneous Provision Act, 1976. Where the minimum term of imprisonment does not exceed three months, the offences are triable summarily. Direct or indirect preaching of untouchability or its justification on the historical, philosophical, religious or traditional grounds has been made an offence. Privately owned places of worship allowed by the owner to be used as places of public worship have been brought within the purview of the law. There is a provision for imposition of collective fines on the inhabitants of any area where such inhabitants are concerned in or have abetted the commission of untouchability offences. Persons convicted of untouchability offences have been debarred from contesting election to the central and state legislatures. Public servants who wilfully neglect the investigation of any offence punishable under the Act are deemed to be abettors.

Directions to the States

Section 15 of the Act lists out measures for the effective implementation of various provisions of the Act. It also provides for the central government to take such steps as may be necessary to coordinate the measures taken by the state governments.

One of the special features of the Act is that special responsibility has been placed on the state governments to ensure that the rights accruing from the abolition of untouchability are made available to, and are availed of by, the persons subjected to any disability. In sub-section (2) of section 15A of this Act, the state governments have been asked to take the following measures :

- (i) the provision of adequate facilities including legal aid to persons subjected to any disability arising out of "untouchability" to enable them to avail themselves of such rights;
- (ii) the appointment of officers for initiating or exercising supervision over prosecutions for the contravention of the provisions of this Act;
- (iii) the setting up of special courts for the trial of offences under this Act;
- (iv) the setting up of committees at such appropriate levels as the state government may think fit to assist the state government in formulating or implementing such measures ;
- (v) provision for a periodic survey of the working of the provisions of this Act with a view to suggesting measures for the better implementation of the provisions of this Act ;
- (vi) the identification of the areas where persons are under any disability arising out of "untouchability" and adoption of such measures as would ensure the removal of such disability from such areas.

Some states have already taken steps for the implementation of the above measures. The progress made in these fields is mentioned below :

The state governments of Andhra Pradesh, Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan and Uttar Pradesh have initiated several schemes for the grant of legal aid to the scheduled castes in certain types of civil and criminal cases, including the untouchability offences. For this purpose, a means test has been prescribed as an eligibility criterion for availing legal aid.

The state governments of Andhra Pradesh, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Orissa, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh have set up special cells at different levels to supervise the implementation of the Protection of Civil Rights Act. The government of Haryana has ensured that prosecution for the contravention of the Act is to be conducted under the personal supervision of the district attorney. The government of Maharashtra has directed the Inspector General of Police, Bombay, to establish local crime units at district levels empowering them to register and investigate offences against scheduled castes.

Special Courts

The government of Gujarat is setting up mobile courts in selected areas for speedy disposal of untouchability cases.

Advisory/review/implementation committees at different levels have been set up by the state governments of Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan and Tamil Nadu.

The governments of Andhra Pradesh and Haryana have entrusted the work of periodic survey to district level committees. The government of Gujarat has proposed to carry out surveys through social research institutes, universities and government agencies like the Bureau of Economics and Statistics and the Directorate of Social Welfare. The Orissa government has entrusted this work to the Harijan welfare advisory boards at sub-divisional levels.

The Andhra Pradesh government has a proposal to give suitable incentives/awards for furnishing information on the existence of untouchability in appropriate cases. The Gujarat government has entrusted district vigilance committees and social justice committees of the district panchayats to do the work of identification of areas. In Haryana, the district-level committees will undertake this work. The Orissa government has asked the sub-divisional level committees to perform this task. In Tamil Nadu, the state government in consultation with the Inspector General of Police will identify the areas.

The Janata Party, in a meeting of its Members of Parliament belonging to scheduled castes and scheduled tribes held in New Delhi on 16 September 1977, decided to set up "vigilance committees" both at the central and the state levels to prevent ill-treatment of Harijans and tribal people. The committees would rush to the spots of reported atrocities and ill-treatment to any such person, make an "on-the-spot" survey of the situation and if necessary, recommend to the central or the state government immediate remedial measures

Prime Minister's Letter

In a letter to the state chief ministers in September this year, the prime minister, Shri Morarji Desai, pointed out that the use of force by landlords to grab Harijan lands be made a cognisable offence to enable the police to intervene directly. He noted that while the use of force to grab land was culpable, violent attacks on Harijans for the purpose were reprehensible

Along with his letter, Shri Desai also sent to the chief ministers the guidelines issued by the Orissa government to its district authorities in this regard for their consideration Under these guidelines, it would be the responsibility of collectors and superintendents of police to take prompt action in respect of incidents where Harijans had been subjected to violence or intimidation.

They should ensure that the incident is immediately inquired into by a specially designated officer not below

the rank of deputy superintendent of police or a deputy collector. This officer should submit his report without delay.

Other suggestions made to prevent harassment of Harijans in an effective manner are :

(i) periodical drives to be launched to reassure the scheduled castes and other weaker sections that their rights will be protected ;

(ii) areas where recrudescence of such instances of harassment is likely to occur should be identified and adequate preventive measures taken ;

(iii) offences involving violation of civil rights on account of caste considerations should be investigated as special report cases and entrusted to specially-designated officers ;

(iv) Prosecutions in such cases should be swiftly launched ;

(v) victims of serious atrocities should be given immediate relief and procedural difficulties should be promptly remedied ;

(vi) imposition of collective fines under the provisions of the protection of civil rights act should be considered in cases where such instances have occurred more than once ;

(vii) legal assistance to the members of the scheduled castes and scheduled tribes should be provided for their defence ; and

(viii) Non-official agencies should be suitably mobilised in this task of providing protection to Harijans and weaker sections of society. □

STRONG YES, BRUTAL NO

I hope that our nation, much less my humble self, will never be brutalised because it is a strange idea that one can only be strong by being brutal. I reject that idea completely. Our strength lies in other factors. Brutality is a thing which we have associated with certain movements which we have objected to or rejected. By becoming brutal and thinking in those brutal ways we lose our souls and that will be a tremendous loss I hope that India, which is essentially a gentle and peace-loving country, will retain that mind even though it may have to carry on war, with all its consequences to the utmost.

There is a definite distinction between strong and being brutalised. I need not mention an instance which has lent prestige to our history—the instance of the long period when Gandhiji was controlling the destinies of our movement for freedom No man can say that Gandhiji was brutal. He was the essence of humility and of peace. No man can say that Gandhiji was weak. He was the strongest man that India or any country has produced. It was that peculiar mixture of strength with sacrifice to the uttermost, yet a certain humility in utterance and a certain friendly approach even to our opponents and enemies, that made him what he was. Those of us who were privileged to serve with him and under him do not, of course, claim to be better than him. We are humble folk who cannot be compared with the truly great, but something of the lesson that he taught came down upon us and we learnt it in a small measure. In the measure we learnt it, we also became strong though, I hope, not brutal. So I would like to stress that I do not want to become brutal ; I do not want that aspect of the cold war and the hot war which leads to hatred and dislike of a whole people and to looking upon them as something below normal.

—**Jawaharlal Nehru**

State Farms Corporation

THE STATE Farms Corporation of India Ltd. (SFCI) was set up in May 1969. To begin with, the Corporation acquired from the Government of India five farms—the state farms at Suratgarh and Jetsar (in Rajasthan) Jharsuguda (Orissa). Jullundur (Punjab) and Hissar (Haryana). At present it is engaged in the development of 12 farms.

The Corporation has an authorised capital of Rs. 7 crore. During the first year of its establishment, equity shares of the value of Rs. 1 crore were issued. Against this an amount of Rs. 62,32,668 was received from the Government of India. The Corporation also borrowed a sum of Rs. 25 lakh from the government. In the first year it earned a net profit of Rs. 27.84 lakh and in 1973-74 the profit reached Rs. 109.00 lakh. However, the Corporation showed losses during 1974-75 and 1975-76. The loss was mainly on account of fall in prices of seeds. Prices were lowered to make available quality seeds to the farmers at reasonable prices

It is a well known fact that India is a land of small farmers with land ownership seldom exceeding a few acres. However, certain objectives, such as the production of high quality disease-free seeds, can be better realised on large farms. The Corporation was set up with two major objectives : (i) production of seeds of various crops, and (ii) reclamation of waste land. Apart from this, the Corporation engages itself in production of foodgrains, fibre crops, plantation crops, oilseeds, fruits and vegetables.

Its 12 farms now command a total area of 109,000 acres.

In respect of production of seeds, the Corporation is satisfying an important need with its farms located in different states with different agro-climatic conditions. Sometimes the seeds have to be produced out of season. There is thus need for an all-India production agency.

MECHANISATION OF FARM OPERATIONS

As a result of research, new equipment is being produced to carry out the various farm operations more efficiently and cheaply. Small farms are not able to use much of the new equipment for economic reasons , only large units are capable of introducing the latest technology. Aerial spraying of crops with urea and mechanisation of potato cultivataion is possible only on large farms. The SFCI has thus an important role to play in mechanisation of farming in the country.

The importance of training in farm management is being increasingly recognised. The agricultural universities impart theoretical training in this field. For practical training one has to turn to large farms like the ones under the SFCI. The Corporation imparts practical training and it also has the capacity to absorb qualified persons. It can maintain a cadre of highly skilled farm managers.

The Corporation is expected to provide the major base for the future seed industry in India. This is because it is already in the process of developing big farms for the purpose of quality seed production in compact areas, thereby minimising the costs on quality checks, processing, cleaning and storage. Locations already under consideration for developing them into seed farms are Suratgarh, Sardargarh and Jetsar in Rajasthan, Hissar in Haryana, Ladhowal in Punjab, Bahraich in Uttar Pradesh, Raichur in Karnataka, Chengam in Tamil Nadu and Aralam in Kerala.

(Contd. on page 24)

Planning for Men or Things?

C. BAL KRISHNA, writing in the *Indian Express* has drawn attention to the weaknesses of mechanistic planning. For instance, the farm—not the farmer—has been usually the focus of attention Similarly, tribal people are often uprooted from their scattered but nicely-located hutments on the hills in a misguided notion of bringing these people into the mainstream of national development. They are asked to move to well-planned colonies, but all that the tribal people want is to improve the houses they live in.

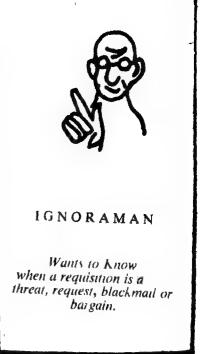
With the best of intentions, government offers them loans for building *pucca* houses, but forgets that cement cannot be transported, as approach roads even for cycling just do not exist. And since the planners often assume that they know what is good for the people, they refuse, it seems, loans to the tribal people for improving their houses using locally available material

Bal Krishna says the plan documents assume human beings as mere cogs in a wheel "The problem of human resources formation and development is by and large neglected in most developing countries with the possible exception of a few countries like Tanzania where the concept of Ujaama village does not ignore this aspect."

To this neglect of men and emphasis on "things" is to be traced the decline in the ratio of allocation for primary education The contingency expenditure on stationery and other items, it seems, is not allowed to exceed one rupee fifty paise a month even for primary schools with a strength of 100 students in the villages of Udaipur district. (Of course, the allocations are higher in towns! One is reminded of Krishna Menon's barb aimed at a pompous British delegate defending in a UN Committee the higher allocation for an English student than for an African in colonial Kenya The tartar in Krishna Menon could not resist hitting back, "Naturally an African child can learn more and with far less than an English child")

THERE ARE still fossils in Yojana Bhavan hidden behind the technological mask who say with Dr M S. Swaminathan that questions of formal literacy can be bypassed by TV, SITE and the rest Debunking the modern-looking antediluvins, Bal Krishna speaks of the immense harm of reliance on such "wonder substitutes" for formal or non-formal literacy programmes. Short-cuts will only dilute the already meagre resources for bringing the teacher and the taught face to face (which even the TV cannot do)

What a travesty of planning that, in a country where large numbers of educated youth are groping for a worthwhile purpose, we think still of TV and SITE for education! The other aspect pertinently mentioned by Bal Krishna is that the teacher, through TV or SITE, may have no means of learning from the millions of "illiterates" who have an abundance of wisdom Somalia and Tanzania have understood the significance of this fascinating encounter between the illiterate and the literate, between sense and nonsense Such an encounter will not only check the rural-urban migration, as pointed out by Bal Krishna, but bridge the cultural gap between the villages and the towns

The Soviet Union, China and Cuba on the one extreme, South Korea on the other extreme and Tanzania in between have found ways, largely traditional, of simultaneously tackling the problems of illiteracy and rural backwardness There is, of course, one problem in India. Our villages are not homogeneous social entities—a fact ignored by the CD programme based on a wrong assumption of a village community which simply does not exist. Each village is a community of communities. Bal Krishna refers to the fact that a village is often controlled by the money-lender, the big landlord and four or five others A purely economic programme depending primarily on better technology cannot bring about any kind of justice—distributive or social

IGNORAMAN

Wants to Know when a requisition is a threat, request, blackmail or bargain.

DO OUR planners, while allocating funds, ever think of setting apart ten or even five per cent of the outlays on programmes to raise the level of conciousness of the people? Why not as much as even Rs 10,000 crore on what is clearly the basis of democratic development? Such an approach will certainly enlarge the employment base, the cultural base and the base of resistance to rural oligarchy The bloodsucking urban process can be reversed only by a massive investment in village school, village communication and the like

When we speak of rural schools, we suddenly hear of "pseudo" revolutionary ideas of open schooling, whereas the city-bred should have the most modern structures. Not that anyone is pleading for extending to the villages the ugly monsters of urban construction. But we cannot say a village does not need some kind of a school building and children can read under a tree This would probably have been eminently acceptable, if the entire social structure conforms to ancient teacher-disciple system. What we are today faced with is a wholly disproportionate expenditure on facilities in towns and next to no spending in villages on social services The result is that a pampered urban class can hold the entire country to ransom

Bal Krishna has written about the pitiable condition of primary schools in villages where, apart from poor accommodation, one teacher has to look after one hundred children, besides being the watchman, administrator etc. Even a black board is a rare sight in the class room.

The problem of our planners is that they always think in terms of a direct relationship between a facility and its consequence. In the case of a village school, the end is not merely literacy or education. The end is much bigger. The school is a centre of village deve-

lopment, it is a catalyst for raising the level of consciousness of the people, it is an instrument for breaking caste and other barriers, it is a way of using dedicated youth for a worthwhile cause. Therefore, one has to think not only of a good school building, harmonious to the environment, of good teachers (not necessarily highly paid) of good and frequent training, of maintenance, of a village reading room, of a village policeman who will serve under the village head-master, of village postal, telegraph and telephone facilities, of dormitories for children, of new curricula based on Gandhiji's ideas, of clothing and feeding the students, of giving them learning aids and of stipends to parents. The school, as Bal Krishna points out, is also a centre of political, civil and social education.

RURAL INDUSTRIES can wait, not rural schools, rural communication and rural roads. Nor should one engage in a controversy over formal or non-formal education. From schooling to de-schooling, from communication to anti-communication, from aided help to self-help, from self-interest to collective interest and then to no interest, from law and order to self-government. For all this the starting point is the village school.

Bal Krishna's article could not have ended more appropriately than with the following quotation from Gandhiji :

> **"The village movement is as much an education of the city people as of the villagers. Workers drawn from cities have to develop village mentality and learn the art of living after the manner of villagers."**
>
> **"This does not mean that they have to starve like the villagers. But it does mean that there must be a radical change in the old style of life."**
>
> **"While the standard of living in the village must be raised, the city standard has to undergo considerable revision without the worker being required in any way to adopt a mode of life that would impair his health."**

Sanjaya

GANDHI MAHARAJ

We who follow Gandhi Maharaj's lead
Have one thing in common among us
We never fill our purses with spoils from the poor
Nor bend our knees to the rich.

When they come bullying us
With raised fist and menacing stick
We smile to them and say :
Your reddening stare
May startle babies out of sleep
But how frighten those who refuse to fear ?

Our speeches are straight and simple,
No diplomatic turns to twist their meaning :
Confounding penal code
They guide with perfect ease the pilgrims
To the border of jail
And when these crowd the path to the prison gate
Their stains of insult are washed clean,
Their age-long shackles drop to the dust
And on their forehead are stamped
Gandhiji's blessings.

RABINDRANATH TAGORE

15-2-1940

STATE FARMS

(*Contd. from page* 21)

The total demand of seed in 1980-81 would be 2,14,500 tonnes The Corporation is expected to contribute 1,00,680 tonnes of seed under the National Seed Project which comes to 46 9 per cent of the total demand.

Brief Notes on State Farms

The Suratgarh farm is located deep into the Thar desert where green revolution has taken place. Launched in 1956, it is a symbol of Indo-Russian friendship and co-operation. The farm has an area of 27,494 acres. During the year 1975-76, kharif and rabi production reached 53,297 and 1,39,985 quintals Its major crops are wheat, paddy and gram. Net profit of the farm during 1975-76 was Rs. 30.84 lakh This is the only farm which showed profit during 1975-76.

The Jetsar farm also shows how, given proper inputs and modern technology, deserts can be made to bloom. The farm was started in 1964 and has an area of 13,316 acres. Its major crops are wheat, cotton, gram, and cotton.

The Hissar farm furnishes an example of what can be achieved through reclamation of waste land. The farm was started in 1968 and has an area of 6912 acres. The major crops are wheat, cotton, gram, and bajra

The Ladhowal came into being in 1971 and has an area of 2 921 acres. Its major crops are wheat, paddy, maize and potatoes.

The Rae Bareli farm shows how the sick saline and alkaline lands can be brought back to life The farm was started in 1973 and has an area of 471 acres Its major crop is paddy.

The Bahraich farm is a multi-purpose farm with plans for diversified farming, including crop production, fisheries, sheep rearing and cattle breeding The farm was started in 1973 and has an area of 5,700 acres Its major crops are wheat, paddy and vegetables, etc

The Raichur farm is located in the cotton growing belt in a backward area of Karnataka and is becoming the hub of cotton development work, particularly the Varalaxmi variety The farm, started in 1969, has an area of 7,310 acres. Its major crops are cotton and jowar

The Khammam farm is also located in one of the backward areas and will undoubtedly be instrumental in taking the green revolution to this part of Andhra Pradesh The farm was established in 1972-73 and has an area of 2,428 hectares

The Chengam farm is well-known for raising dry land crops The farm, established in 1971, has an area of 9,648 acres. Its major crops are maize, groundnut and vegetables.

The mizoram farm demonstrates to the Mizos how to increase agricultural production through modern agricultural practices.

The Kokilabari farm is also fulfilling the same purpose in agriculturally backward areas of Assam The farm, started in 1971, has an area of 4,906 acres Its major crops are paddy, wheat and potatoes

The Aralam farm, set in picturesque surroundings is engaged in developing plantation crops like pineapple, coconut, cashew nuts and cocoa. The farm was started in 1970, and it has an area of 7,559 acres.

Textile Mills Versus Handlooms

SULTAN SHAHIN

THE HOME MINISTER's suggestion that the output of textile mills be earmarked for export and the home demand be fulfilled by handlooms has been criticised by certain sections as "hare-brained". On the other hand Shri Charan Singh's idea may help generate sixty lakh jobs immediately. This alone should have qualified the idea for serious consideration, if not unanimous approval.

The textile lobby, however, seems to be active to strip the poor to the skin. Prices of cloth have risen by as much as 83 per cent since 1972. The per capita cloth consumption has consequently been going down steadily. The controlled cloth scheme introduced in 1964 has not achieved its objective. Cheap cloth consumed by the common man is seldom available in the market. And all these years, the Congress government had been shouting that India is the third largest exporter of cotton textiles, that it ranks first in installed capacity and that our mills produce as many as 3,000 varieties of fabrics.

The mill sector shares about half of the 8,000 million metres of cloth produced every year. The remaining half is produced by the decentralised sector of which handlooms produced 2,330 million metres of cotton cloth in 1976, besides weaving almost all the silk fabrics of the country. The powerlooms produced about 1,100 million metres. The parity between the mills and the decentralised sector, however, ends here. As far as the employment potential is concerned the mills provide direct employment to only about nine lakh people and indirect employment to a few lakhs more—the people who are engaged in cotton cultivation, ginning and processing of cotton, cottonseed crushing and marketing. On the other hand, the handlooms provide direct employment to as many as one crore people who are running 35 lakh cotton handlooms and about 3 lakh silk, art silk and woollen handlooms. The quantum of cloth generally prepared by 12 handloom workers is equal to what is prepared by one textile worker. Obviously, handlooms are much more labour-intensive than the mills and yet they have received little encouragement from the Government.

Problems of the Handloom Sector

A comparative study of the gigantic problems the handloom industry has to face and the patronage the mills have all along received are quite revealing. Every now and then the weavers clamour, unsuccessfully of course, for adequate and timely supply of yarn, dyes and chemicals, at reasonable prices. A high-powered Study Team on the problems of handloom industry set up by the Government of India in July, 1974 found out that "As far as composite mills are concerned, the handloom sector can rely on the supply of yarn only to the extent that it is surplus to the requirements of the mills. These mills first utilise yarn in order to meet their requirements in full and make supplies to the handloom sector only out of surpluses, if any". Moreover, constantly plagued by the fear that their product may not be sold, handlooms are compelled to market their products largely near the centres of production, whereas the products of the organised sector, find their way to all parts of the country. The recommendation of the Study Team that modernisation of handlooms should be undertaken is still lying in the cold storage.

In almost all States, there is a complete lack of infrastructure for distribution of yarn and for providing credit to the weavers. No suitable programme has so far been evolved for training the weavers in order to improve their efficiency. While loud protestations have been continually made for giving the weaver a fair deal, his artistry and sophistication have remained utterly unmatched by any effort to effectively organise production and marketing in his best interests. While a few states had initiated measures for improving the condition of weavers, there has never been any nationally directed programme for development of this sector.

Huge Profits by the Mill Sector

On the other hand, the mill sector has enjoyed all possible privileges to enrich itself at the cost of the nation. The huge profits this sector earns is common knowledge. A study of the 249 cotton textile companies made by the Textile Commissioner showed that their net profit rose from Rs. 11.04 crore in 1971-72 to Rs. 31.34 crore in 1972-73. A similar study of 223 mills revealed that their net profits jumped to Rs. 63.55 crore in 1973-74. Seven other mills made profits ranging between 50 to 300 per cent in 1973 over their gains in 1971. These figures are based on their balance-sheets. Knowledgeable sources believe that the balance sheet figures are illusory and the actual profits are much more than that. Similarly total exports of the textile industry rose to Rs 500 crore in 1976-77 from Rs. 296 crore in 1974-75. The per unit export realisation went up to Rs. 3.41 per square metre in 1974 from Rs. 2.81 per square metre in 1973. From about Rs. 5.50 per kg. in 1966, the unit value realisation on cotton yarn jumped to as much as Rs. 16.15 per kg. in 1975. Exports of apparel rose from Rs 30 crore in 1972-73 to Rs. 95 crore in 1973-74 and to Rs. 184 crore in 1975-76.

Over and above these huge profits, this industry has been benefitting greatly from all sorts of government largesse extended to it from time to time. Imports of polyester fibre, for instance, have been decanalised and placed on the free-licensing system. Imports of cellulosic staple and polynosic fibre have been permitted free of duty and placed on Open General License from July 24, 1976 to October 31, 1977. The Government is spending Rs. 25 crore from the public exchequer to supply the industry with imported cotton.

In spite of all this, the industry has remained firm in its determination to thwart every attempt to clothe the poor. When the controlled cloth scheme was introduced in 1964, and the share of the controlled cloth to the total cloth output was fixed at 50 per cent, the powerful textile lobby lost no time to put its weight against the measure. It pressurised the then Government to reduce the share of the controlled cloth to 40 per cent. Not satisfied with this the industry started producing controlled cloth of such a poor quality that few people wanted to buy it. The consequent lack of interest was exploided by the lobby to prove that there was no genuine demand for controlled

cloth in the country. The following year the common man's share was further reduced to 25 per cent and later on to as little as 10 per cent. To add insult to injury, the textile, industry has been claiming that it incurs an annual loss of Rs. 80 to 90 crore on account of being compelled to produce controlled cloth. What is worse, the Congress Government took their agitation much too seriously. The price of controlled cloth was raised as many as six times and the quantity of broad varieties of controlled cloth to be produced by mills was reduced still further. It was decided that production of controlled saris and dhotis would be entrusted to the handloom sector and the mills could get the remaining controlled varieties through the powerloom sector.

Deliberate Sickness

The textile industry has, indeed been leaving no avenue unexplored for cheating large funds out of public exchequer. They keep running their obsolete machinery for as long as possible without making any effort to modernise it. Once it becomes absolutely useless they declare it 'sick', banking on the belief that, cloth being a basic need of the people, the Government will surely come to their rescue. This racket has been going on for decades. So far the National Textile Corporation has had to take over 103 sick units from the private sector.

This state of affairs amounts to a gigantic fraud on the people. The huge profits—varying from 50 to 300 per cent—that the textile industry has been earning has been invested in other more profitable indus'ries like electronics, chemicals and engineering while legitimately they should have been invested in improving the health and productivity of the textile industry itself. During the entire fourth plan period, the actual expenditure on modernisation was a paltry Rs 15 crore against the recommended minimum of Rs 375 crore. A World Bank team described the majority of cotton textile mills as 'industrial slums'. The team felt that the productivity of even the worst mills could be improved by updating and reconditioning the machinery to give 80 to 90 per cent of the performance of new machinery at 40 per cent of the cost of new machinery.

According to a study conducted by the National Productivity Council (N.P.C.), the industry is losing 184 million kg. of cotton and 182 million kg. cloth per annum on account of economically inefficient and technically obsolete machinery. Giving details the N.P.C. report says that while 60 per cent of the total installed capacity is more than 30 years old, another 20 per cent of the capacity is weak. This apart, over the last 18 years, the industry has not been able to utilise its installed capacity to more than 73 per cent in the case of looms. So much for our having the largest installed capacity in the world.

Clearly the textile mills sector needs a vigorous shakeup. The new Government will have to deal firmly with the monopoly houses which have been thriving at the cost of the poor. The situation also calls for large-scale efforts to develop the handloom industry. The difficulties of the weavers in getting adequate and timely supply to meet their essential requirements as well as in marketing their products in an organised way should be removed forthwith. A Raw Materials Bank could be set up to ensure a continuous and timely supply of yarn, dyes and chemicals at reasonable rates.

But here again the government will have to be cautious. At the moment while certain range of handloom products are available to the lowest income groups of the community, there are fabrics at the other end of the consumer spectrum which are suitable pricewise only for the well-to-do such as the urban elite or for the foreign markets. Indeed, despite the blessings it brings to millions of families in the form of employment, the handloom sector has yet to make any significant impact in meeting the requirements of the large mass of the people in the middle income groups who ask not only for quality but also for durability and reasonable prices. At the same time no effort should be spared to see that the Indian consumer begins to exercise an increasing and conscious preference for the products of the handloom industry. Meanwhile a study team can be set up to go into the various aspects of the suggestion and find out how the switchover can be effected without causing any dislocation in the industry or any harassment to the consumer.

Indian Planning—A Review and Recast

Partha Pratim Mitra

INDIAN PLANNING has been based on a paradigm which looks into economic history. Fundamentally, this paradigm relates development with urbanisation. At least this is how the noted scholar Prof Simon Kuznets puts it in his book 'Economic Growth of Nations'. According to him basic elements of the historical growth experience are the same in the capitalist and the socialist world. Development calls for change of the state of rural and an agro-based underdevelopment to the prominence of an urban industrialised sector. As urbanisation continues, the importance of agricultre in the share of the total national income diminishes. A higher industrial wage rate encourages migration from villages to the newly developed townships and cities. But this does not imply that agriculture is neglected. On the contrary, owing to capital investment average productivity of labour in this sector, shoots up and tends to approach the same level as in industry.

In most countries of Latin America, South and South East Asia and Africa, the above pattern has been accepted as the model for development. But unfortunately, the process of growth is yet to start since the conditions which prevailed in the advanced world during the [illegible] century no longer exist in them.

Our Plan Strategy

The main objective of our five year plans, in particular the second and third plan, has been "development along socialist lines to secure rapid economic growth and expansion of employment, reduction of disparities in income and wealth, prevention of concentration of economic power and creation of the values and attitudes of a free and equal society".

The emphasis in our plan strategy up to now has been to usher in self-reliance by the building up of economic and social overheads, exploration and development of minerals and the promotion of basic industries such as steel, machine

also been felt that the low
rds of living, under-utilisa-
human resources and inequa-
the pattern of income distri-
have been the result of basic
evelopment and over-depen-
on agriculture. Thus rapid
ialisation and diversification
economy has been the basis
development so far.

second five year plan,
hough a continuation of the
pment process initiated dur-
first, has been conspicuous
shift in priorities with a grea-
phasis on industrialisation,
lly the heavy industry. The
nodel has been based on the
of Prof. P. C. Mahalanobis,
is essentially a variant of the
it forward by Prof. Feldman
Soviet Union.

goes without saying that
h a change in strategy of our
mic planning in the second.
1 the third plan, satisfactory
ss has been made on the in-
il front. But unlike the Soviet
this achievement has been at
pense of other sectors.

RRELEVANT COMPARISON

comparison of the conditions
g prior to the commencement
Soviet and the Indian first
shows that the two countries
een standing on a different
g altogether. The per capita
bility of fooodgrains per annum
Soviet Union in 1928, the in-
al year of planning, was about
g. Thus food was never a
aint in Soviet planning. The
problem had been to collect it
he rich farmers (Kulaks) and
ute it at reasonable rates in
dustrial centres and cities. To
this problem, the collectivisa-
movement was launched by the
Government. In 1928, ow-
good crops, grain levies
ited to about 8 million tonnes.
gh during the first plan period,
ltural output in Soviet Union
about 20 per cent Stalin was
o mobilise sufficient quantities
in to feed his workers. Despite
sed food production, food
heap to continue the industria-
n programme.

in India, the position has
quite different. In 1955, the
ear of the second plan, the
pita availability of food grains
aried arround 160 kg per
gure was still lower during the
plan period. Between 1951

been 175 kg. in 1965 and the lowest
153 kg. in 1973. In the remaining
years, the annual availability of
grains has varied around 160 kg.
per head. These figures indicate
amply the difference in the pre-
planning conditions in the Soviet
Union and India. The situation
was comparatively much better in
the former than the latter. Whereas
the heavy industrialisation program-
me of the Soviet Union could be
pursued without undue pressures
on the economy this was not possi-
ble in the case of India. An ana-
lysis of the planning achievements,
will give us an estimate of the
penalty we had to pay for opting
for the heavy industry.

DEFICIT FINANCING

Economic planning called for
rapid mobilisation of financial re-
sources, especially after 1956, when
the emphasis shifted towards indus-
trialisation. To overcome the
absence of a free and smooth flow
of funds into the development pro-
ject there was no alternative but to
resort to the printing press. In the
first plan, deficit financing was
Rs 333 crore or 17 per cent
of the total outlay of Rs. 1960
crore In the second plan the
amount shot up to Rs. 948
crore out of a total plan expendi-
ture of 4600 crores or 20 6 per cent
of the aggregate In the third plan
the figure went up to Rs. 1133
crore out of a total plan outlay of
Rs 8557 crore or 13.2 per cent.
During the 3 annual plans deficit
financing was to the tune of Rs 682
crore which was about 10 per cent
of the total plan expenditure of
Rs. 6756 crore In the fourth plan,
the amount was Rs. 1,203 crore out
of a total of about Rs. 16000
crore The lessons of excessive defi-
cit financing have still not been
learnt even after the crisis of
1973-75.

The cumulative rise in deficit
financing over the years, has been
mainly due to the fact that the gov-
ernment spending has been in excess
of the revenue earnings. As the
extra expenditure is not backed by
adequate supply of goods that
deficit financing has led to inflation.
And when, prices start rising,
the general cost of production is
pushed up and a larger supply
of funds is needed to conti-
nue development work, which in a
poor country like India can be had
mainly through deficit financing.

Thus the vicious circle goes on,
for example after a 16 per cent fall
was 30 per cent rise at the begin-
ning of the second plan with 1939
as the base year. The inflationary
pressures which made their appear-
ance during this period have
stayed with us right through with
short interruptions. The third plan
witnessed a price rise of 46 per cent
with 1960-61 as the base year. The
fourth plan started on a note of
caution but as old habits die hard
unwarranted fiscal practices on the
part of the government culminated
in the crisis of the early 1970s
when in a single year a 30 per cent
price rise was recorded. Even
though fiscal discipline was enforced
during the emergency, between
March 1976 and February 1977,
the prices rose by 12.5 per cent.

With inflation challenging the en-
tire planning process, it is difficult
to achieve social justice and eradi-
cate poverty. A general measure to
estimate the two is the level of an-
nual per capita real income, which
is again dependent on the level of
prices. During the decade ending
1960-61, this income had risen at an
annual compound rate of about 1.7
per cent. One expected the percent-
age to rise still further with planning
gaining in experience and sophisti-
cation in the next decade. But it has
been quite the converse. The annual
per capita real income instead of
rising has fallen sharply to 0.8 per
cent (compound) which is even less
than half of the 1950s. Even after
30 years of independence more than
one-third of our population lives
below the poverty line. Such sorry
results have raised doubts about the
efficacy of planning to eradicate
poverty.

FALLING INVESTMENT

Despite mounting investment in
successive five year plans the level
in real terms has been inadequate to
fight unemployment A prohibitive
cost structure has forced the govern-
ment and many an enterprising
entrepreneur to curtail productive
ventures which would have generat-
ed employment and raised the aggre-
gate level of production. A rapid
growth of population is also respon-
sible for this state of affairs, to a
certain extent. But if the cost of
production had not been high and
prices had been relatively stable
much of our economic evils would
have disappeared and the employ-
ment picture would have been
much brighter.

According to Shri V. M. Dande-
kar in 1972-73, of the 240 million
comprising the labour force, 30 per

cent (72 million) did not have any stable means of livelihood. Out of this 72 million, about 30 million were casual workers while 4 million were jobless. Even assuming that about half of the 30 million had some way to earn a living, even then the unemployment figure stood at 19 million—a force to reckon with.

Among the many plan objectives, industrialisation alone has made outstanding progress. During the years of planning, our national income on an average has gone up by 3.5 per cent in which the percentage increase in agricultural production is 2.8 whereas that of industry stands at 6.1. Not many industrial countries exceed this pace. But this achievement as already pointed out has cost us rather dearly in resources, production, employment and income.

The old centralised and heavy industry biased model of development has thus become a curse for the future of the Indian economy. It is imperative that we formulate a more popular down-to-earth integrated rural-oriented decentralised production structure. Development in the words of Mahatma Gandhi should be 'not only for the masses but also by the masses'. Without the wholehearted support of the public, nothing can succeed and the only way to bring success in economic planning is to make rural India, the centre of development.

Moreover the twin problems of unemployment and poverty have their origin in the countryside where about 70 per cent of our population live. The Bhagwati Committee on unemployment in its report submitted to the government in May 1973 observed that out of the 18.7 M unemployed, 16.1 M (86 per cent) came from rural areas and only 2.6 M from urban centres. On the other hand it is expected that out of the 200 M increase in rural population in our country at the turn of the century, a good percentage will be below the minimum living standards. These estimates predict a future which is not too bright for us.

Need for Rural-based Planning

Agriculture is the chief means of livelihood in the rural areas and 60 per cent of our national income is generated in the villages. It is, however, strange to note that in all these years of planning such stepmotherly treatment has been given to agriculture. Of the total plan outlay the share of agriculture, community development, irrigation and flood control during the first pain was 32 per cent, second plan 22 per cent, third plan 20 per cent fourth plan 24 per cent and fifth plan about 20 per cent.

The Janata Government has decided to give agriculture its rightful place in Indian planning, so that benefits percolate in the villages where majority of the people live.

Undoubtedly, decentralisation of the production process will be the main theme. But the method of approach to this new strategy is very important. Faulty techniques and wrong methodology have been the main drawbacks of our past planning mechanism. Hence one will have to think twice before deciding on the mode to implement the process of decentralisation.

District Planning Boards

As the district as a unit of planning is large enough for a well integrated plan strategy, district planning should be the focal point for all planning. The main purpose of district planning is to channelise all available resources for the needs of the local population on a set priority best suited for them.

Such a method of planning will bring about the much needed change in our economic policy and open a new chapter in Yojana Bhavan. Intensive rather than extensive planning would be the order of the day. This will imply a thorough search for undiscovered mineral deposits, harnessing of rivers and waterways, exploitation of sub-soil water resources and in general all that has to be included for the provision of an infrastructure to facilitate economic growth.

This type of decentralised planning will also accelerate the march towards the attainment of Mahatma Gandhi's cherished objective- - *Poorna Swaraj* (total independence), which implies not only political independence but also freedom from poverty and ignorance.

But the entire process of district planning will hold good subject to one condition. It must receive the much needed support and guidance of the state. Within this framework free interaction of market forces should be allowed to play with certain reservations. The state must see to it that a market morphology which ensures free competition does not benefit a particular section of the society leading to exploitation and class conflicts. So long as these reservations are made a free interplay of market forces will bring about economic efficiency and a more optimum utilisation of resources.

Now, how is district planning to be implemented. Best thin[g] be for each district to have [a] planning board. The com[position] of this board is very crucial to be formed in such a way is conducive to grass-root p[lanning]. All sections of the society get a representative on the so that the real problems society get highlighted. The [mem]bers of the board should be by the people and the gov[ernment] could reserve a few seats f[or] weaker sections.

This planning board sho[uld be] responsible for all the devel[opment] activities that take place [in the] district. It will work hand [in hand] with the local administrati[on to] solve the economic problem[s in] cooperation with lead bank[s,] other financial institutions s[uch as] cooperative credit societies i[t will] evolve a district production[, em]ployment and a credit plan

The district planning boa[rd will] have direct links with the [national] planning commission. There [is no] need to have state planning [boards] as these provide scope for [centrali]sation in economic directive[s and] concentration of economic a[nd poli]tical power The planning c[ommis]sion will have to be recons[tituted] so that the district planning [boards] get a chance to represent [them]selves on the apex body.

The task of the new p[lanning] commission will be quite d[ifferent] from the present ones It [will] only formulate the broad ec[onomic] goals and policies of the g[overn]ment. The implementation will be dealt with by the planning boards keeping in v[iew] guidelines of the national The details of economic p[lanning] will be made by the regional who will adjust the overal with their own local set-up instance, if eradication of [poverty] and unemployment be the p[olicy of] the national body, it is up lower bodies to see how the[se pro]blems are eradicated. The[y] take their decisions in the of their regional set-ups. T[he] policy for eradication of [poverty] and unemployment of a dis[trict in] a hilly region will be quite d[ifferent] to that of a district in the Similarly backward district have their own priorities of economic problems. The the entire scheme is to se[e that] planning suits the local and al needs which ultimately w[ill suit] national ones. Thus planni[ng should] be done from below and no[t from] above as it has been done s[o far]

mestic Wastes

R. R. KHAN

TILISATION OF domestic waste water or the sewage for gation is practised in India since . Besides containing water, ge has substantial manurial and conditioning values. In India, one hundred cities have partial complete sewage-disposal devices. of about 800 million gallons sewage produced per day the country, as much as one d is disposed of on the land If rest is properly regulated and ycled, it can contribute to solv- some of our chronic problems scarcity of water, energy food, tilisers and those of water pollu- n.

Treatment to this liquid waste ults in the production of about lakh tonnes of sludge every year ving the water clear. The water after the treatment is ideal for gation purpose.

BETTER CROPS

Experiments conducted at the ional Environmental Engineering earch Institute (NEERI), Nag- over a period of four years g high yielding varieties of wheat a test crop showed that sewage tion and its nutrient fortifica- s with chemical fertilisers were ful in getting maximum benefit studies also revealed that there e no marked changes in the soil perties as a result of sewage ir- tion and that sewage irrigation pecially beneficial for short ation crops and vegetables ps such as papaya and plantain w ideally with the help of age water.

The Western regional station of ional Dairy Research Institute DRI) at Bombay has evolved a em of recycling animal wastes cowdung and urine for grass duction on their demonstration n. The solid wastes are conver- into compost in a plant. The id waste is collected in a sedi- itation tank and pumped through prinkler system to irrigate the onstration farm. With this ingement of once-a-week sprin- irrigation equivalent to two in- s of rainfall, an unexpectedly yield of fodder has been ob- ed. In 1971, NDRI production ched a world record of 160 ton- of green fodder per acre per um.

ject to utilize sewage and to check the pollution of the Ganga at Varanasi taken in hand a few years ago, is now nearing completion. The scheme envisages diverting sewage waters into a farm outside the city. A similar scheme has also been drawn up to check pollution of Yamuna at Mathura with a total outlay of Rs. 67 lakh. The degree of sewage pollution of Yamuna at Mathura is 7-8 times that of Ganga at Varanasi.

FISH FARMING

It was established in early fifties that fish can live on raw sewage provided it was aerated continuously. Investigations on the ecology of sewage effluents at Chelsea College London revealed that large marketable food fish can be grown in sewage effluents without the outlay of money needed for artificial feeding which on a commercial fish farm can comprise up to 40 per cent of running cost. Nitrates and phosphates present in sewage are readily assimilated resulting in luxuriant growth of plankton which in turn are consumed by fish and help in its growth.

Fisheries experts recommend species of fish which feed at three different levels, Catla, rohu and mrigal which are respectively surface, column and bottom feeders for release into the sewage irrigated ponds. Some of the hardy fishes like mirror carps are also recommended because they are tolerant to low levels of dissolved oxygen

At places where recycling of sewage is not possible, the intake of sewage into the pond should be so regulated as to keep the dissolved gases and suspended solids well below the lethal limits by diluting the sewage prior to its release into the fish pond. According to one report from Tamil Nadu Department of Fisheries, fresh water 4-10 times the volume of the sludge is required for proper dilution. Excess of sewage in the pond leads to a decline in the dissolved oxygen thereby resulting in the death of fish due to asphyxiation.

Due to inadequate utilization of available sewage and lack of proper scientific data on sewage fish farming, the per hectare production of fish grown in sewage irrigated farms in India is only 400 kg per annum as compared to 3,000 kg per annum in Japan and 3,760 kg per annum in Israel.

In oxidation ponds, sewage is allowed to settle down leaving the settled mass or sludge when dried may be used as a feed to poultry, fish and pigs as it has high percentage of Vitamin B12 present in it. The dried mass is also rich in nitrogen, phosphorus and potash and can, therefore, be used as fertiliser for crops and fish farming.

A Rs. 12 crore scheme to produce 350 million tonnes of organic manure and compost based on farmyard and urban waste material has been prepared.

BIO-GAS

Another by-product which emerges after recycling of sewage is the biogas. Of late, the biogas plants have become quite popular in rural areas. There are some 20,000 to 30,000 biogas plants in the country, but according to the report of the Scientific Committee set up by the Indian Council of Agricultural Research, the maintenance of such plants is extremely poor. The reasons listed are the high cost of installation, marked fall of production of gas during winter and social prejudices.

Scientific studies have shown that undiluted wastes are not the best form producing biogas. Maximum benefit could be achieved when the wastes contain 5-9 per cent of dry matter.

In India, the gas production potential of the excreta of many farm animals like goat, sheep, pig, horse, camel and poultry has been tried. Poultry excreta provides maximum amount of gas followed by those of pig, goat, sheep, horse and camel and gas production starts within a few hours. On the other hand production of gas from cow and buffalo dung is not only low but it takes two to three weeks in warm weather before gas production begins.

FINANCE FOR DEVELOPMENT OF BANDA DISTRICT

M. E. Haque

Union Bank is one of the many nationalised banks extending its services in the under-developed district of Banda (U.P.). During a recent survey it was found that since its inception in December, 1975 the amount deposited with the bank up to 26-8-1977 i.e. one year and 8 months, totals Rs. 19.45 lakh with 1,368 account Nos. Out of this total deposit the bank provided advances amounting to Rs. 5.46 lakh to poorer sections of society, for different developmental schemes.

Yojana Quiz

1. What are the Apocrypha ?

2 Which are the smallest countries in Europe ?

3. How fast do the following animals travel ?

   (a) Cheetah

   (b) Race horse

   (c) Lion

4. Shakespeare's women characters are not so talkative as his men. ı King Lear Cordelia endeared herself to every reader with how many nes ?

5 What is a stalactite ?

6. How does a mirror enable us to see ourselves ?

7. What is the great hole in the Kalahari desert ?

8. What is the first Indian coloured film ?

ANSWERS

1. The Apocrypha are books written in very early times and pu forward for acceptance as scriptures, either in the old testament o the New Testament, but not accepted by the whole or by any pai of the Christian Church

2. There are three independent European countries each with ai area of less than 100 sq miles—Liechtenstein, San Marino and Monaco.

3. (a) 128 Kms an hour (b) 56 kms per hour (c) 99 kms a hour

4 Only 115 lines

5. A stalactite is like an icicle, and is formed in something of th same way by water, which tickles down and hardens into a solid.

6 A mirror is made with a layer of quick silver behind it. I that were not there we could see through the glass as we see throug the window, but the quick-silver prevents the light going through an sends it back again. The glass and the quick-silver are both perfectl smooth and we can see ourselves in anything that is smooth and fla and that is able to throw the light back to us

7 It is a mighty hole half a square mile in area with nearly per pendicular walls and more than 160 feet deep

8. Sairendri of Prabhat Studio Coloured in Germany

Quotation Box

Only fools do not differ

—Morarji Desai

*

Do not worry if the father is in jail. You have the mother who is still free.

—Mrs. Nusrat Bhutto

*

I do not regard anyone as being bigger than the Congress.

—K. Brahmananda Reddy

*

Indian voters did more for the cause of human rights than all President Carter's words have done so far.

—The Punch

*

Pressure that takes a year to be felt is not pressure at all.

—Yitzhak Rabin

*

My colleagues tell me that I can have all my affairs abroad.

—Atal Bihari Vajpayee

*

If you want to make peace you do not talk to friends. You talk to your enemies.

—Moshe Dayan

*

I have seen a number of employees who, if it weren't for approaching retirement, would continue to be loyal and efficient workers. Because of it, they have lapsed into premature senility. They walk around like zombies just waiting for the day they retire.

Ombudsman at the Boston Globe
—Charles Whipple

REVIEW ARTICLE

Gandhian Alternative to Present Political System

ARUN SHARMA

THE PARLIAMENTARY system of democracy with its party government has been with us for nearly three decades now. We have seen the best and the worst features of this system. On the positive side, we have seen the building of giant steel plants, construction of huge dams and reservoirs, extension of agriculture and increased international trade. But as the architect of the "modern temples", Pandit Nehru, succinctly put it, with all the developments taking place in the country, the rich had become richer and the poor poorer. Democracy, in real terms, thus did not mean a thing at all to the ordinary citizen.

The worst features of the Parliamentary system were of course witnessed during the period of the country's stewardship by Mrs. Gandhi, especially during the last nineteen months of her rule No one can deny that she did some very good things for the country. But her efforts to hold on to power at any cost after the election petition went against her, revealed some of the ugliest features of the so-called democratic system enshrined in our Constitution.

Under this system an elected Prime Minister, was able to assume extraordinary and unprecedented powers of coercion, declare an emergency, nearly eliminate all her political and other opponents, muzzle the press and rule the country with unparalleled ruthlessness But what about the common man who expected to derive some of the great benefits of *Ramrajya* promised by the great leaders of the Congress ? The current value of the rupee, which is just a little above one-fourth of what it was before independence, is an index of the sufferings the common man has had to experience in the last thirty years of unbroken Congress rule. If this is what the Parliamentary system of government can offer the country, is it not time for us to experiment with some other political system ?

The Lincoln Institute of Social Research and Public Opinion, Dharwar, (LISRPO), a non-partisan public body, which aims at bringing together academic experts and policy-makers in the common task of improving the tone and tenor of our public life has published an interesting thirty page pamphlet. According to its authors the time had come for giving a trial to what they describe as the Gandhian alternative to the present political system The timing of the pamphlet coincides with the complete rout of the Congress at the polls and the victory of the Janata Party and especially the declarations of the Janata Party leaders and Shri Jayaprakash Narayan and others that they would follow Gandhian ideals in their efforts to serve the people

The pamphlet, which is in three parts, points out that the Western political system was rejected by Gandhiji as early as 1916. Though he had not specifically laid down an alternative, the LISRPO, which has done a lot of research into the massive literature left by Gandhiji, is of the view that Gandhiji left enough hints on the basis of which one could form an alternative to the present political system. They claim that this work has already been done by Gandhiji's follower, Shriman Narayan.

One of the main reasons which compelled Gandhiji to reject the Western political system was that it separated religion from politics. Gandhiji was firmly of the opinion that the two were so closely interlinked that they could never be separated. His second, and probably the more important, reason was that the State should control society. This is something absurd for Gandhiji because, society is the source of power and a system which allows society to be controlled by the State, is completely wrong.

Gandhiji's life and views were unique in several respects, some of them in their apparent contradictions For instance, Gandhiji could not think of separating religion from politics, but he appointed Nehru, to whom religion did not mean a thing, as his "political heir" Moreover, it will not be wrong to presume that though Gandhiji, had rejected the Western system as far back as in 1916, he had already begun to compromise (or had he become realistic ?) after the transfer to power This may or may not be correct, but it is a fact that Gandhiji was alive for a brief while to witness the actual functioning of the Western political system in India under Nehru. The authors, in their zeal for everything Gandhian probably did not attach importance to this point. But it is quite on the cards that if Gandhiji were alive today, he might have accepted the Western political system with some important amendments to suit Indian conditions.

The pamphlet deals comprehensively with the Gandhian political model under which the society will control politics, and not *vice versa*. This means that all political institutions will be subject to control by the people. Another significant point is that power would be so completely decentralised that the village, which is at the base of the political pyramid of power, and, of little significance now, will become politically the most significant in the national system Gandhiji rejected the party system because under this, people only exercise their voting rights They have little control over the political processes Also, the system provides opportunity for rich people to capture and occupy positions of power.

It is good that the authors of the pamphlet are aware of the fact that the Gandhian model will present its own problems It would have been better if the authors also recognised the fact that in the present day world, the Gandhian model cannot deliver the goods and had Gandhiji been alive, he would have himself amended his so-called plan They have, however, a genuine complaint that the Gandhian ideal has been totally ignored by his followers despite the fact that the "Western system has been faced with constant crises and riddled with hopeless dilemmas of self-contradiction" The authors believe that it is possible to reconstruct the Gandhian model and renovate the Indian political system with the help of Gandhian political ideas and values They, therefore, present what they call a practical alternative to the current system based on ideas from Gandhiji's own writings and the writings of his distinguished followers like Vinoba Bhave, Jayaprakash Narayan, Ram Manohar Lohia and others

Reform of the Indian Political System: The Gandhian Alternative : *The Lincoln Institute of Social Research and Public Opinion, Dharwar ; Pages* 30, *Price Rs* 3

In the third and last part of the pamphlet, the authors declare that the full expression of Gandhian values and ideas would not be realised except through the implementation of the recommendations contained in the Gandhian model. They admit that this would be something like a total revolution in the country, a Gandhian revolution. Considering the immensity of the problems to be faced, the authors suggest that before the Gandhian plan becomes historically practicable, there should be a clear-cut strategy to prepare the grounds for such an eventuality. They have, therefore, made detailed suggestions to convert the present system to the Gandhian model to the extent possible. They feel that within the existing conditions, some changes could be made in the election commission and the administrative and the educational systems Changes could be made in the local self-government and the economic system including the planning process There are suggestions to reduce the status of the ruling party during the elections to the level of the other parties, to prevent the use of governmental machinery to influence the electorate, by making the AIR and the DOORDARSHAN into autonomous corporations, to put an end to the role played by money during elections, reduction of voting age from 21 to 18, speedy disposal of election petitions and steps to end corruption at all levels Drastic changes are also proposed in the present Panchayati system so that bureaucratic interference and control is minimised and public participation and control maximised.

The authors are gratified that the Janata Party leaders have expressed their desire to follow the ideology of Gandhian economic decentralisation. They suggest that there should be a modification in the economic landscape so that it will be dominated by small and medium units managed by the people and for the people. This system, they say, will generate more employment, bring more economic satisfaction and reduce present tensions within the political system. In the end the authors express their conviction that the ultimate and the immediate solution should be based on the ideas of Mahatma Gandhi, Jayaprakash Narayan, Ram Manohar Lohia and Dr. Ambedkar.

After a careful study of the pamphlet, one gets the impression that one could agree with most of the recommendations of the authors in regard to the transition period before implementation of the Gandhian model. One feels at the same time, however, that while some of the views and values of Mahatma Gandhi are capable of being implemented, some others such as the complete decentralisation of power and the distribution of finance are totally impracticable. In the last three decades, our independence was threatened at least thrice. Now the question arises as to who will safeguard our hard won freedom if the seat of power i e effective power, is spread all over the countryside? Again, how will a weak Centre, with a meagre 15 per cent resource, spread over several departments discharge its essential function of defending its territory. The Gandhian model may suit us during periods of unbroken peace, but not during external aggression

One can, of course, agree that the Western Parliamentary system does not completely satisfy our needs or suit our genius. But then, this does not mean that we should throw away the baby with the bath water There is no reason why we should not amend it drastically if necessary, to suit our needs. There is much in the Gandhian model also which can be taken to suit our needs We should remember that Gandhiji was a great pragmatist. Were he alive today he would have himself suggested changes in his so-called model

Development Notes

Power Rise in Haryana

Power production in Haryana has increased to 67.50 lakh units a day from mere 17 lakh units in 1966. It is expected to rise further to 90 lakh units a day by early 1978 against the current demand of 80 lakh units by the agricultural and industrial sectors. This additional power is expected from Dehar and Pong Power houses complex likely to go into generation by the end of this year.

With the commissioning of a thermal unit of 60 mw at Faridabad, two units of 110 mw each at Panipat, now at various stages of construction, the power production will stand at 150 mw units a day by the end of 1979.

New Wheat Variety for Rainfed Areas

A new wheat variety WL-410 for cultivation under rainfed conditions, has been evolved and released by the Punjab Agricultural University. This is disease resistant and yields higher than the previous wheat variety C-306 recommended for similar conditions in the State.

WL-410 is a semi-dwarf, highly resistant to loose smut and possesses high degree of field resistance against the yellow and brown rusts. It yields 25 quintals per hectare and has been identified as a superior variety for the *barani* conditions of the entire North-Western plains of India.

Neem Oil for Curing Hides

The Central Leather Research Institute has evolved a new method of curing raw hides and hides and skins with a mixture of organic compounds obtained from neem oil which will dispense with the use of common salt forming a major pollutant in tannery effluents.

The other advantages of the new methods are (1) there is no deterioration in quality of skins during storage; (2) soaking back is easy without resorting to use of wetting agent and bactericides; and (3) transportation cost is reduced and quality of final leather is comparable with that of leathers obtained from wet salted stock.

Handloom Project for Tripura

Tripura's handloom and handicrafts industries will receive a boost with the implementation of development schemes taken up by the Handloom and Handicrafts Development Corporation. The corporation has drawn up a Rs. 52 lakh project for development of the handloom industry which employs over 97,000 weavers, mostly tribals, and 4,000 others and accounts for annual production worth Rs two crore.

For the handicrafts industry the Centre has already sanctioned Rs. 48 lakh export-oriented scheme currently under implementation.

The handloom is the largest single industry of Tripura with about 123,000 looms installed. Products of the industry currently go to Hungary, West Germany and Australia.

Power Generation in UP to be Augmented

Power generation in Uttar Pradesh is to be augmented at a cost of Rs. 259 crore during the current year. Under the scheme 40,000 private tube-wells and pump sets are to be energised and 5,000 villages and 5,350 Harijan bastis provided electricity. With the implementation of the scheme, the installed capacity of power generation in the state, by the end of 1977-78, will reach 2,991 mw from the present 2,651 mw capacity. An additional 376 mw capacity will be generated by commissioning 110 mw and 66 mw units at the Harduaganj thermal power station and 200 mw station by Obra thermal power station by the end of March 1978.

The 400 kv transmission line, considered the biggest in the country is likely to be commissioned by the end of the current year between Obra-Sultanpur-Lucknow for distribution of the bulk power to be generated at the Obra power complex This increase in the power generation capacity is officially recognised as over 50 per cent of what has been achieved in the State during the last thirty years.

New Implement for Soil Preparation

A new implement called 'rotating-auger plough' which is in use in some European countries and reduces the cost of soil preparation to half or even less is likely to become common in the rice growing areas of Punjab very soon. It can prepare the seedbed for wheat in a field where paddy has been harvested in a single pass while normally it takes 4 to 8 passes with conventional tractor-driven implements. This implement, the cost of which when manufactured indigenously will be around 6,000 rupees, can be operated with a tractor of 30 H.P. and above. It can prepare one acre of land in about one hour

Centre Approves Two Industrial Units

Two industrial units-an HMT watch assembly factory and 10,000-tonne industrial explosives plant-have been cleared for Rajasthan. The watch assembly unit is one of the 12 proposed to be set up in the country to attain self-sufficiency in watches in three years.

The scheme envisages manufacture of both mechanical and electronic watches. The present demand of six million watches a year is likely to rise progressively to nine million a year in the next five years The present plan for expansion of capacity is expected to meet this demand.

The Rajasthan Industrial and Mineral Development Corporation, a state government concern will set up the industrial explosives factory It will meet the demand for mining operations in which the state is one of the foremost in the country.

Irrigation Schemes for Tribal Areas

Rs. 17.62 crore would be spent on four medium and 395 small irrigation schemes in Bilaspur and Raigarh districts of Madhya Pradesh this year. The schemes include 47 small works in the tribal areas of Bilaspur district under the tribal sub-plan and 64 small works in the tribal areas of Raigarh district under the same plan

Completion of the above schemes will mean the extension of irrigated area in two districts by 86,000 hectares.

The Position of a Prime Minister

The Prime Minister's position, according to my conception, is certainly pre-eminent, he is first among equals. But he has no overriding powers over his colleagues; if he had any, a Cabinet and Cabinet responsibility would be superfluous. In my view the Prime Minister, as the leader of the party and the head of the whole administration, is inevitably concerned that Cabinet decisions are effective and that there is no conflict between one Ministry and another. But the entire responsibility for implementing the policy of Government rests upon the Ministers and Ministries under them which are concerned with the subject matter of the Cabinet decisions. He has accordingly the right to ask for information from the Minister concerned as well as the right to consult and advise on the lines of policy to be adopted and even the manner in which the policy is to be implemented. But the responsibility for the implementation of the policy must be that of the Ministry concerned and of the Minister in charge, and the Prime Minister should influence action by way of consultation with and advice to the Minister. I feel sure that this position of the Prime Minister not only fully safeguards his pre-eminence and makes him an effective head of the Administration but is also fully in accord with democratic principles and rules of ministerial and Cabinet responsibility. This is also, as far as I have been able to ascertain, in accord with the UK practice.

From Sardar Patel's note to Mahatma Gandhi

ON SERVICES

I need hardly emphasise that an efficient and disciplined and contented service, assured of its prospects as a result of diligent and honest work, is a *sine qua non* of sound administration under a democratic regime even more than under an authoritarian rule. The service must be above party and we should ensure that political considerations either in its recruitment or in its discipline and control are reduced to the minimum, if not eliminated altogether. At the same time, I fully appreciate the importance of ensuring that the services are amenable to the control and discipline of ministers, both provincial and central. This is all the more important in an all-India service where it is obvious that recruitment, discipline and control etc have to be tackled on a basis of uniformity and under the directions of the central government which is the recruiting agency. This consideration has already influenced us in evolving the rules and regulations for the existing IAS and IPS which have been settled in consultation with provincial Governments and which, by providing provincial ministers' control in certain comparatively minor but not at all negligible matters, have made due allowance for the prestige and powers of provincial ministers.

From Sardar Patel's letter to Jawaharlal Nehru

April 27, 1948

Salute to the Sardar

Matchless Bravery

It was a great privilege for me to have been with Sardar Vallabhbhai. I was well aware of his matchless bravery and his burning love of the country, but I have never lived with him as I have had the good fortune during the last 16 months. The affection with which he covered me, recalls to me that of my own dear mother. I never knew him to possess motherly qualities. If the slightest thing happened to me he would be out of his bed. He superintended every little detail in connection with my comforts. He and my other associates had conspired to let me do nothing. His solicitude for the farmers of Bardoli and Kaira I can never forget.

Mahatma Gandhi *after his release from Yervada Jail* in 1933)

Warm Heart

I was warned before I came to India that I should meet my match in a very tough guy, Sardar Vallabhbhai Patel, but when we met I came to the conclusion that he could not be quite as tough as the act that he put on. He is so very apparently hard and firm and unyielding, and I think he is like that because he doesn't want the world to know that a very warm heart beats behind that rugged exterior.

Lord Mountbatten *on the eve of his departure from India*

A Great Captain of Forces

It is a great story that all of us know and the whole country knows. History will record it in many pages and call him the builder and consolidator of the new India and will say many other things about him. But perhaps to many of us here, he will be remembered as a great captain of our forces in the struggle for freedom and as one who gave us sound advice in times of trouble as well as in moments of victory, a friend and colleague and comrade on whom one could invariably rely, as a tower of strength which revived wavering hearts when we were in trouble. I who have sat here on this bench side by side with him for these several years will feel rather forlorn and a certain emptiness will steal upon me as I look at this empty bench.

Jawaharlal Nehru
(Speech in Parliament)

Outstanding Leader

Sardar Patel played an outstanding part in the great events of this generation and his name will have a permanent place in the annals of India.

Clement Attlee

Printed by the Manager, Govt. of India Press, Ring Road, New Delhi-110064 and Published by the Director, Publications Division, Patiala House, New Delhi-110001.

Yojana

Accent on Agriculture

Emerging Debate on Smaller States

Police, Prisons and Bureaucracy

For Consensus on Economic Policy

Punjab Experiment

New Challenges for Industry

dministration for Development

ystems Approach to ural Planning

Extracts from

Janata Party's Economic Policy Statement

THE JANATA party is pledged to the building of an economic system which will ensure the basic requirements of bread, freedom and equality. The record of human history shows that freedom and equality in absolute terms are in conflict, where one alone prevails the other shrinks.

The Janata party is of the view that there is need to develop an alternative both to capitalism and communism. The party believes in treading the path of Gandhian socialism on political and economic decentralisation It believes in creating a society largely based on self-employment It holds that an egalitarian society can be built with narrow income differentials and in which citizens will have the freedom and initiatives to shape their economic life within the framework of social regulations

The Janata party is opposed to any economic system which allows individuals or groups freedom to exploit others, at the same time it is not in favour of the state possessing unlimited power which will destroy all initiatives and freedom and result in the establishment of a totalitrian society.

The Janata party desires the widest possible dispersal of ownership of property and means of production This is the sole guarantee of social justice and democracy Free market capitalism leads to concentration of economic power in private hands Ownership of all means of production by the state would lead to concentration of power in the state. Such concentration inhibits freedom in one case, and gives rise to disparities in the levels of living in the other case, thereby engendering social and political tensions

The Janata party, therefore, will put a curb on economic power (i) by imposition of physical limits where feasible, both on existing possessions and future acquisitions, (ii) through differential taxation on incomes and wealth and other appropriate measures so as to reduce these inequalities to the minimum and (iii) to regulate or demarcate the techniques or the mode and scale of economic operations, particularly in the sphere of industrial production

Concretely the Janata Party will strive for the establishment of an economy which will :

(a) (i) ensure higher production per unit of land in the field of agriculture, because land is the crucial limiting factor in our conditions and, therefore, valuable ;
(ii) ensure optimum production per unit of capital investment in the field of industry because capital is comparatively scarce ;

(b) provide maximum employment per unit of land in agriculture and per unit of capital investment in industry, as we have a huge population to support and unemployment is on the increase ;

(c) ensure equitable distribution of the national product ;

(d) prevent exploitation of others' labour so that opportunity is provided to the largest number of our people for development of their personality and pursuit of their individual aptitudes ; and

(e) ensure that even private property is used to subserve the common good in accordance with the trusteeship concept advocated by Gandhiji

The new thrust of the Janata economic policy would, therefore, be growth *for* social justice rather than growth *with* social justice

The dynamics for the change-over to such a society and economy would be provided, in the first instance, by the utmost decentralisation of the process of planning, and, in the second, by the elevation of agriculture to the predominant position and finally by mass-oriented industrialisation

The party calls upon the government to so reshare the economic policies that the annual average rate of growth of the economy can be raised to seven per cent per annum during the next five years This would require a substantial increase in investment backed up by increased efforts at mobilisation of domestic savings Our economic policies, including fiscal and monetary policies, would have to discourage ostentatious consumption and promote the habit of saving, austerity and swadeshi.

The party is greatly concerned at the sluggish rate of increase of agricultural production in the last twenty years averaging no more than the rate of population increase Without a rapid increase in agricultural production there cannot be a sustained increase in the standard of living of the ordinary people Since 80 per cent of our people live in rural areas, without a rapid increase in their purchasing power, even the market for industrial goods and hence the scope for industrial development must remain restricted

AS AN IMMEDIATE objective, the government should aim to raise the share of agriculture and rural development to at least 40 per cent of public sector's investible resources exclusive of metalled and asphalted roads, transport and education but including electricity used for agriculture and village roads The primacy of agriculture to which the Janata party is firmly committed implies that hereafter the needs of rural areas for public investment will be met to the limit of productive absorptive capacity of rural areas.

We have viewed with considerable concern the imbalance in the allocation of credit for working capital needs in the urban as against the rural sectors of the economy. The major portion of finance and credit is today going to the urban and industrialised areas and inadequate funds are being pumped into the rural economy. Every effort must be made to reduce dependence of agriculture on private money lenders through development of institutional network We also recommend that the deposits mobilised by the commercial banks in the rural areas should be earmarked for rural development.

A fifteen year national plan for the development of irrigation should be evolved without delay. Emphasis should be laid on fully utilising the potential of quick maturing small scale and minor irrigation Local labour, local resources, gram panchayats, cooperatives and, above all, voluntary agencies should be effectively harnessed for extending such irrigation

In the long run soil conservation is even more important than soil utilisation. Government should,

(Contd. on Page 34)

YOJANA

Volume XXI Number 22

16 December, 1977

25 Agrahayana, 1899

Published on behalf of the Planning Commission in Assamese, Bengali, English, Gujarati, Hindi, Malayalam, Marathi, Tamil and Telugu.

Yojana seeks to carry the message of the Plan but is not restricted to expressing the official point of view.

Chief Editor

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Subscription : Annual—Rs. 18. Two Years—Rs. 30. Three Years—Rs. 42. Foreign Subscription : One Year—£2.70 or $5.50. Two Years—£4.50 or $9.00. Three Years—£6.30 or $12.50. Single copy—Twelve pennies or $0.25.

"Implementation of plans is intimately associated with better organisation and operation of the general administrative machinery . . .The structure of the older organisation. . has to undergo modification . . . Unless the expert begins to work at problems of plan formulation and implementation not chiefly from the point of view of feasibility of technical performance or optimum technological requirements but from the point of view of what could be the best arrangements under given administrative and economic constraints, his contribution to planning would not be very effective".

From the fourth five year plan

Administration for Development

THE BASIC assumptions behind the kind of development effort that has gone on for about a quarter century are now being subjected to a critical review. Statements on behalf of the government, the party in power at the centre and the planning commission suggest that there is very likely to be a departure, in many ways, from the policies so far pursued. Not only is there talk of greater emphasis on agriculture, rural industry and rural employment, but there are frequent references to the need for political and economic decentralisation. A direct relationship between political democracy, individual rights and personal freedoms on the one hand and people's sector (as different from the state sector), self-employment schemes, local initiatives and voluntary effort on the other hand has been emphasised in several policy pronouncements

How does the present administrative system fit in this new order? Even for the kind of planning which we had for about 25 years, it was being increasingly recognised that the existing system was inadequate and even antithetic to the objectives of policy. One can see references to this inadequacy in some of the previous plan documents. Even so, very little was done to refashion the administrative system. The reasons are not far to seek. Since very strong vested interests had developed in the civil service structure, and since the vested interests had gained control not only of the administration but also of the policy-making apparatus, they could successfully frustrate every effort for reform. Besides, the nexus between a decaying political set-up and an aggrandising bureaucracy made certain that no worthwhile reform was possible. The licensing and control policies had their own logic.

The main criticisms against the present administrative system are that it is stodgy, cumbersome, costly, time-consuming and insensitive Responses are slow and procedures are rigid. There is little scope for innovation and imaginative enterprise. Administration, far from being an aid to the people has become a burden on them. Areas where the administration meets the people are sorely neglected. In a system where many men are accountable, no one, indeed, is accountable Besides, there is mutual suspicion and, consequently, reluctance to delegate power down the line. From every point of view, therefore, there is urgent need to objectivise, simplify and functionalise the system, so that it can be target-oriented, easily accountable and based on the interacting principles of individual and joint responsibility.

MUCH OF INDIA'S drudgery needs no great investment to overcome. It is not always a question of resources. It is often a question of attitudes and approaches.

The expansion of the civil bureaucracy in the years of planning has little relation to the needs of development. This, in turn, has strengthened urban consumerism and parasitism, with disastrous consequences for the economy. A non-functional and non-productive civil system is not only an evil in itself, but is a great milestone round the neck of the people.

bureaucracy had the effect of conferring on the functionaries privileges disproportionate to their social usefulness. The result has been that the civil service soon got lost in a spree of acquisitiveness and careerism with little thought of the rationale for its existence. The distance between the public "servants" and the public gradually increased ; and the servants have long ceased to be motivated by the "will to serve". Overlordship tendencies have grown ; the administrative styles are marked by cynicism, smugness, paternalism and authoritarianism.

ANOTHER FEATURE of the present system based on a permament bureaucracy is the illusion of competing seats of power. Even as the theory of commitment to a political policy was irrelevant to a permament civil service, the argument of a separate sphere of inviolate and independent administrative jurisdiction is contrary to the system of parliamentary democracy with the cabinets responsible to the legislatures.

Apart from a general need to overhaul the system, some urgency for such an overhaul is imparted by the new policy goals of the government and the planning commission. The idea of autonomous corporations was introduced when the state entered the area of industrial and other economic activity in a big way. While this was an improvement upon departmental management of public enterprises, this did not represent a radical change in the administrative ethos. The concept of accountable autonomy will work only if autonomy itself is broken into sub-autonomies. Basically, the problem of administrative reform is how far the centralised infrastructures can be dismantled. Even evaluation and project appraisal should be built into a system of autonomies with powers, responsibilities, targets, economies and budgeting going together.

It would be disastrous if the parasitic urban administrative culture is extended to the villages in the name of creating new organisations for rural uplift. A disquieting aspect of the Punjab scheme for creating "focal points" is that a separate development infrastructure under a commissioner is being contemplated. Shri V. T. Krishnamachari was credited with the view that an administrative approach to the community development scheme might destroy the idea He was, at that time, reported to have suggested to Jawaharlal Nehru that, instead of creating a new class of career-oriented CD hierarchy, the prime minister should try to draw on the energies, idealism and enthusiasm of a large number of congressmen who had taken part in the freedom struggle. That advice may be even more valid today after the experience of the CD programme. It should be possible to find a large number of dedicated young men in the country who can be associated with the development effort. Even the training programmes should be so arranged that the men on the job will be able to guide the planners about the problems involved in implementing a particular course of policy. Data collection, socio-economic surveys and economic census need not hold up any programme. Once a task is undertaken, the data will flow from the performance of the task; training, evaluation and appraisal will then become a two-way process.

In any event, the new personnel to be involved in the tasks of rural communication (including information, education and even posts and telegraphs), water management, power development, rural industry, agricultural extension, rural banking, rural credit, village policing etc. should be outside the present omnibus, monolithic administrative structures. New forms of target-oriented, easy-to-monitor personnel systems linked to performance and detached from the high-wage, career-based bureaucracies have to be evolved. This should provide adequate scope for local initiatives and an excitement of challenge and response. The village infrastructures should themselves be catalysts of social transformation, so that a self-sustaining process of rural development may be set in motion

Over a period of time many of the metropolitan infrastructures should be enabled to disappear, leaving behind only small standard-setting, policy-making and research-oriented institutions, which, too, could be further dispersed. The line of command arrangement should give place to an interacting system between the field and the simplified policy formation institutions

To try to infuse a new administrative culture into the present system or to make a new kind of civil servant of the present personnel will be next to impossible The best thing to do will be to let the present system wither away. The least that the planning commission can ensure is that this system shrinks fast and does not expand

FINALLY, THE GOVERNMENT and the planning commission will be in great error if they think that any new policy has even the remotest chance of success with the present administrative system. The commission's first task is to engage in a serious exercise of evolving new styles and forms of administration and a new kind of public functionary.

If the present bureaucracies are to be permitted to formulate plan schemes on the basis of an incremental approach, disaster is likely to overtake the country sooner than is probably understood by those who are in charge of policy. It is to be hoped that the government and the planning commission will not allow themselves to be stampeded into such a calamitous policy

Effort for National Consensus on Economic Policy

SHRI CHANDRA SHEKHAR has set the tone of political reconciliation by promising to seek the cooperation of all parties in the implementation of the country's economic programme. The economic tasks before the country cannot be those of a single party. It is the responsibility of all parties to mobilise the people for mass action to carry out programmes for their uplift.

To an extent NDC provides a forum for such a national approach. But an extra-official consensus is equally necessary in this as in other national tasks like communial harmony, harijan welfare and political decency.

While it is reasonable to say that the policy of the ruling party is essentially the responsibility of that party and it will be unfair to ask others to give their undivided support to it, is equally valid to expect that, at least in broad areas of economic development, there will be a truly national approach and effort. In a situation such as ours, the differences can only be on emphasis and not on basic goals And if one saw the major economic platforms of the national parties, one would be struck by the very large area of convergence of views. The congress party,

in particular, is as much wedded to Gandhian ideas, as the Janata party claims to be. Even the extreme sections of political opinion cannot be objecting to many aspects of the Janata party's economic policy statement. The objectives of mass employment, removal of mass poverty, bridging the urban-rural differentials, distributive justice, attack on urban consumerism and parasitism, austerity, people's involvement, new administrative styles to suit the new development strategy, reducing the wage and income disparities, wide dispersal of purchasing power, limitation on profits and dividends—to mention a few—can be achieved faster if there is a national consensus. The politics of reconciliation on this basis can be followed by a politics of confrontation, once the basic levels of ideological differentiation are reached One can make a new religion of science, technology and industry, some kind of opium not of the masses but of the classes. On the other hand, one can talk sensibly of the role of science and the rest in the larger scheme of things. The supreme consideration, as Gandhiji said, is man; science and industry are meant to serve him and, as Shri Chandra Shekhar said, can be bent to any scale that is in the best human interest

The argument that the new policy may benefit the rich farmer may or may not be valid But to argue that the rural poor is left out of consideration is, to say the least, a little uncharitable The new policy may not lead to the millenium. But it will certainly help in overcoming some of the worst features of poverty and exploitation. Once this is done, the battle lines can be drawn.

THIS IS not to say that valid and bonafide criticism and doubts can be brushed aside. The most common of the criticisms is about the vagueness in resource mobilisation for a seven per cent growth rate or forty per cent investment in agriculture, in the talk of surpluses to be generated by industry from internal resources and in the choice of technology as well as freezing and reduction of capacity in the organised sector. Another criticism has been that full account has not been taken of the fact that ours is no longer an economy of shortages. The problems of training 30 million more weavers in the handloom sector, supply of raw materials to the artisans and the marketing of their goods are real. Subsidised supply of farm inputs has come in for sharp criticism.

But the cynicism noticeable in the comments of some economic pandits leads one to suspect that the occasion has been sought to be used to talk from a pedestal to the gentry at large--an attitude which has made the commentator increasingly irrelevant to the scheme of things

There may be room for further compromises and adjustments. There is a planning commission which is bound to bring to these matters a realism which is seldom the strong point of the document of any political party anywhere. That realism will, however, be conditioned by a new mood in the country which can be missed neither by the planners nor by the political parties.

Smaller States : The Debate Has Just Begun

THE QUESTION of how big or small a state should be within the Indian union had been with us almost since the SRC submitted its report. The controversy began with a dissenting view in the SRC report about Uttar Pradesh.

The present debate on this issue is a little more serious than it has been in the past The home minister is credited with the view that smaller states would conduce to better administration and faster development, besides, of course, greater participation by the people in the formation of policy. Others have given expression to a similar view from time to time. The examples of Haryana and Punjab have been cited in support, though recent disclosures may throw some doubt on the thesis that smaller administrations are necessarily sensitive to public opinion.

It would be a little premature to conclude from some authoritative statements that the final word has been said on this issue. The debate has just begun and shows every sign of being joined in various forums.

The fear that smaller states would, in some way, undermine the integrity of the union seems somewhat exaggerated. With much less than half the population, the USA has much more than twice the number of states that we have, without the federal government being any the weaker for it. What is more pertinent, however, is that the size of the states cannot be discussed in isolation from consequential changes in the statute to strengthen the federal scheme.

The Janata party is setting up a committee to study decentralisation of power. One does not see why Shri Madhu Limaye should try to foreclose the debate on smaller states, as though this has little to do with devolution of authority.

SHRI JAYA PRAKASH NARAYAN has been long canvassing for smaller states to reduce the distance between the government and the people. Apart from other advantages, the greater time which ministers may devote to details of people's problems has been mentioned by him as a strong argument for smaller states which would also make for cultural homogeneity, as, for instance, north and south Bihar. Vaishali, Magadh and Mithila have all been brought together in the present day Bihar, not necessarily because this was in the people's interest but, more probably, because this was in the imperial administrative interest JP is of the view that smaller states would give meaning to the concept of grassroot democracy and take us nearer to Mahatma Gandhi's idea of *swaraj* According to him even Nehru was not averse to the division of the bigger states. JP thinks that smaller states, far from promoting divisive tendencies, would greatly reduce them, if not altogether end them.

The many views expressed on this question do not appear seriously to dispute the premises behind the argument. The major fear seems to be that any exercise in this direction may open the Pandora's box. It may not be wise to get bogged down in the mire of controversy and agitations over this problem when there are other and more pressing problems to solve. This is plainly the burden of Shri Desai's news conference in Bhopal The time is not opportune and few will disagree with this assessment.

The view that more states may mean increase in administrative expenditure and bureaucratic expansion may not be correct. Some new forms of direct relationship between the people and the government

may, in fact, cut down both. There is thus a bureaucratic vested interest in larger states. The division of Assam has proved that none of the best principles of good administration had been sacrificed.

SHRI PROMODE DAS GUPTA, who heads the policy-making body of the left front in West Bengal, has said an all-India convention is being convened soon to focus attention on the "need for readjustment of centre-state relations". JP may attend the convention.

It is good that federal policy is the subject of an idea debate. Though the difficulties are real and solutions may not be imminently available, the debate should be encouraged. The effort should be for a broad consensus of political and professional opinion which could be the basis for a further thrust towards democratisation of the political and administrative process. Non-official agencies can play a crucial role in organising meaningful seminars throughout the country on new forms of federalism which, while bringing the administration closer to the people, can, indeed, strengthen the Union.

Democracy, Police Bureaucracy and Prisons

THE GREAT confusion over the role of the police in India's public life, probably, can be traced to the peculiar expression "law and order", as though the two go together; over the years, "order" became more important than 'law" and, what is worse, "order" came to be associated with what was "convenient" and "comfortable" for the party in power or for the men in power.

The increasing involvement of the police force in what are essentially political functions has naturally led to the corollary of the political process being regarded more and more in terms of police power in its larger and narrower sense. The first casualty in this was the functional role of the police in matters like investigation, law enforcement, crime detection and protection of the people, particularly women, children and the down-trodden. The cynicism with which the police force, including its intelligence branches, has been blatantly misused in recent years, has not only demoralised a fine force of officers and men but has alienated them from the people

The home minister has never missed an occasion to speak on this aspect and try to correct the perspective In a recent address to IPS probationers in Hyderabad, he has clarified his repeated advice to policemen not to obey illegal orders. He has said that whenever they are in doubt, the policemen should ask for written orders from the superior officers; and when these orders are palpably illegal, they should disobey them

Refreshingly, he has by implication referred to the now famous "encounters" with the Naxalites. Maybe some groups, believing in violence, violated the law But that was no excuse for the police taking the law into their hands and usurping the powers of the courts.

Shri Charan Singh, however, has disappointed a good section of his supporters and admirers in the choice of personnel and terms of reference of the police commission. Unless he is able to satisfy the people that no opposition leader of stature was ready to head the commission, the criticism that he has gone back on his word will be hard to repudiate. The other personnel also do not seem to have been chosen exactly for their zeal for radical and basic reform Administrative experience—which often goes with rigidity and conservatism—has been preferred to idealism, enthusiasm for reform and acquaintance with social movements and sociology. The commission is very unlikely to inspire confidence unless its composition is radically corrected. It would be unfair to ask that the chairman and the members be dropped. What can be done is to expand the membership by inclusion of two or three women who have shown great interest in police and prison reform, preferably from the opposition political parties, social scientists, eminent men who have been in the forefront of the civil rights movement and representatives of the lower formations of the police force. Since it is the broad left movement which has largely led many of the political agitations in the past, it must have adequate representation besides those who had taken part in the Bihar movement.

While mention has been made in the terms of reference to investigative methods, protection of the weaker sections, the democratic role of the police force and the needs of the rural areas, a specific injunction to the commission to suggest how the police may be enabled to uphold the law and not subvert it and how they may disregard illegal orders is lacking Further, the commission has not been asked to suggest how a new rural force outside the present police hierarchy may be formed purely on the lines of the London bobby. This apart, a service component must be integrated into the career of a policeman

The conflict between the police force and the magistracy has to be resolved Even the police commissioner for Delhi seems to be in doubt because of administrative vested interest.

The home minister, whose keenness for radical eform of the administrative, police and prison systems has won him plaudits, may be expected to respond to these positive suggestions made by several quarters.

EQUALLY IMPORTANT is reform of the prison system. The disclosures before the Shah Commission have perhaps not shocked many in this country who have got reconciled to a slow erosion of every human value in the last decade or so The *Statesman* has done well to draw attention to the fact that even now Bihar's jails have some 12,000 inmates more than they were orginally built to house. What is worse is that nearly 26,000 of the 31,000 prisoners are yet on trial and should be presumed to be innocent till they are proved guilty In West Bengal, half of the 24,000 persons (the capacity of the jails is far less) are under trial. This, despite the recent release of some 6,000 prisoners It is a travesty of justice that men whose guilt is as yet uncertain should be thrown together with hardened criminals, unless it is government's intention to make sure that even innocent people become criminals. Equally scandalous is that "lunatics" are placed in jail under a 75-year old Act. This is hardly the way of curing them. Even orphans and the homeless are behind the bars.

The appalling conditions of sanitation, housing, food and medical treatment have been known to

exist, besides the impudence of bestiality which marks the attitude of the prison hierarchy to those who are their charge. It is not merely the prison code that has to be changed, as promised by the West Bengal jail minister; it is the entire system of keeping people in jail and subjecting them to inhuman treatment that has to be overhauled.

The constitution needs to be amended to provide for statutory authorities to inspect prisons, safeguard human rights, and ensure that no one is in prison without trial for more than a few months or a year at the most. Punishment for investigative inefficiency cannot be visited upon the hapless members of society

The Janata party, whose main platform has been human liberty and dignity, will be untrue to itself if it does not move swiftly in this matter.

AND FINALLY, the administration Political infighting should not obscure the basic point made by Shri Promode Das Gupta that the higher bureaucracy (secure in its service rights) sometimes has the effrontery not only to flout the orders of the elected government but to subvert its functioning There may be good reason to ensure that the officials are not at the mercy of a minister's whim But it will be a travesty of democracy if a minister has to be at the mercy of the official's whim and even arrogance This country, in recent years, seems to have witnessed only two qualities in the so-called steel frame—timidity and acquiescence in immorality in the hour of crisis on the one hand and extraordinary crust and defiance bordering on politicking in a democratic set-up The home minister should not dismiss Shri Das Gupta's statement merely because it comes from a leader of another party If the core of his charge is not investigated, there will be great danger not only to federalism but to political democracy in the country

The Punjab Enterprise

SOME twelve thousand villages in Punjab—the entire country side of the state, in fact will be brought under a new programme symbolically launched by the prime minister at the Assa Butter village The time schedule is five years The cost is put at Rs 302 crore, mostly to be got from institutional finance and World Bank loans A socio-economic survey of every village is being undertaken. This will give an idea of the extent of unemployment and under-employment. The objective of the programme is to stop the migration to the towns through regeneration of the villages The operational strategy is to maximise the use of local resources in men and material for the development of each cluster of villages. The immediate goals will be full employment, fifty per cent increase in farm output, renewal of traditional trades and industries and uplift of the weaker sections. Growth centres or focal points are to be identified and developed. Production, marketing and banking facilities will be made available within five kilometres of each village There will ultimately be 500 focal points, each catering to about 20 or 25 villages.

At each focal point, there will be a branch of a cooperative or commercial bank, agro-service centres, retail shops, a marketing yard, a hospital, a veterinary dispensary, a diesel or petrol pump and a post office with telephone facility. Later, there will be agro-based industries, cold storages, shopping complexes, community centre-*cum*-children's parks, sports stadia and cinema halls.

Soil and water conservation and subsidiary occupations like dairy, poultry and piggery have been included in the programme.

Obviously, a lot of detail remains to be worked out. Not the least important is the administrative and organisational arrangement which will be responsive and sensitive to problems as they arise, accountable, target-oriented, anti-hierarchical, career-proof, dedicated and enterprising.

Industry and Rural Development

THE CORRELATION between enlightened self-interest and the imperative of rural development is being increasingly recognised by industry, it seems. A committee of the Associated Chamber of Commerce and Industry (ASSOCHAM) has said that without the development of agriculture and activities designed to increase rural incomes, the market for the products of industry could well stagnate, "as is indeed happening with cloth, steel and other items". While asking industrial units to create viable projects of rural development and train villagers to execute them well, the committee is in doubt, however, about how soon industry can "put on the armour of rural development" A cautious approach (so characteristic of Indian "enterprise") is, therefore, recommended. Available (and necessary) resources will be identified in the first instance ; committed and trained personnel, with the backing of the management resources of a good company, will then be located ; afterwards, existing voluntary agencies will be sought after, which may be supported by industrial units by way of supplemental help in training and personnel. Or, the voluntary agency may be asked to work where the industry wants it to.

ASSOCHAM does not think much of financial commitment of any size. Industry's role will be in terms of personnel, training and advice ; the projects themselves could be financed by banks, for instance.

It is possible that industry's attitude, already influenced by the argument of an expanding domestic market through generation of rural incomes, may be further influenced by the guidelines formulated by government about corporate "enterprise" in rural development which may bring in tax benefits. An illustrative list of categories of rural projects, which may qualify for such benefits, has been given. Among them are help in setting up self-employment industrial schemes for the rural poor, establishment and running of dispensaries, maternity and child welfare centres and family welfare centres, nutrition programmes for school children, setting up and running of educational and vocational training centres, building and maintenance of rural link roads, village streets, pavements, drainage, drinking water schemes like wells and tube-wells and cleaning of wells and ponds.

The list also mentions provision of street lighting in villages and electrification of harijan and tribal homes, help in building houses for the weaker sections (sites to be provided from public funds), minor irrigation schemes including pump sets for small and marginal farmers, supply of improved seeds and facilities of seed testing as well as help in setting up seed farms for the small and marginal farmers, supply to these farmers of fertilisers and insecticides and training in their use and supply of plant protection equipment, farm tools and machinery to the panchayats for use by small and marginal farmers.

Animal husbandry schemes including veterinary dis-

pensaries, artificial insemination centres and processing and marketing of dairy products, help to marginal farmers and landless workers in poultry farming, horticulture and pisciculture and workshops to service and repair farm machinery as well as train artisans and mechanics will also receive consideration for tax benefits.

This announcement, together with Shri H. M. Patel's advice to the all India manufacturers' organisation to seek a strategy of growth through employment and Shri George Fernandes' assurance that encouragement to small units would not necessarily be at the cost of large units, should make for a visible (not symbolic) involvement of industrial houses in rural development programmes Such involvement in the past has been at the cost of village artisans, the benefit almost flowing to the business or industrial houses. Shri Fernandes himself gave the example of less than subsistence wages obtaining in the carpet industry which sells the carpets at fantastic rates at home and abroad. In the export market, Indian handlooms as well as primary commodities like jute, tea, manganese and iron ore have not had their due share Business and industry cannot all the time be complaining of poor returns without playing some role in the generation of rural incomes in the form of support schemes, payment of good wages and aggressive marketing of primary goods as well as products of village industry both at home and abroad with benefits flowing to the producers and artisans.

THE INDUSTRY ministry and the planning commission are reported to be working on support measures necessary for sustaining an ambitious programme of developing tiny units with an employment potential of three million in five years' time. Entrepreneurs themselves will be expected to invest about Rs. 2,200 crore in these schemes. Refreshingly, a totally new organisational form is being worked out for this massive programme Regulatory procedures for the small entrepreneur will be greatly simplified, reduced, and probably eliminated. These entrepreneurs will themselves be asked to regulate and assess their work To enlarge the flow of institutional finance to village and small industries, the lead bank concept may be modified, so that one bank may be responsible for meeting their requirements.

At the moment the bulk of assistance meant for the small sector is appropriated by the better-organised small units Units with an investment in plant and machinery up to one lakh rupees may have to be categorised separately for some preferential treatment Ninety per cent of the small units are probably in this category The investment subsidy of 15 per cent in backward areas may be converted into investment-*cum*-employment subsidy applicable to tiny units in areas of a population of less than 50,000. Other small units may get only 10 per cent subsidy.

Marketing support to the tiny units by the national small industries corporation will be strengthened. Income tax, excise and sales tax exemption for five years, graded system of reservation of items for production by small units, setting up of mini-industrial estates, creation of a special fund for infrastructural development in backward areas and conservation of local material for local use are among other measures which are being considered for encouraging the tiny units.

It is clear that new orientation of economic policy is not just so much talk. Obviously even the conservative civil bureaucracy seems to be bitten by this new bug And if industry is really serious about finding a market and a return, it will look not to the government but to the small-man—the worker, the entrepreneur and the artisan

Recognising the Naxalites

JP was among the first of the Gandhians to recognise the relevance of Mao and his Indian followers to our social and political movements. Some years ago he openly defended them even while he was not agreeing with their methods. He has since returned to this theme quite often. It is not surprising, therefore, that on the eve of his departure for Bombay for medical treatment, he should have issued a special statement asking the Naxalites to join with other revolutionary groups in organising *peaceful* mass actions for the well-being of the people.

Naxalites are known to be active in Bhojpur district where the harijans have suffered much and have responded to a particular form of resistance. JP's sympathies with the harijans have never been in doubt "The exploited classes have no alternative to uniting and asserting their rights". Class struggles may not be advocated but one cannot run away from them where they become inevitable. Only, these should be waged "firmly and peacefully". Violence would be suicidal

JP has reaffirmed his view that "basic problems cannot be solved except through organised people's power". A friendly government can "extend a helping hand" Only "revolutionary solutions" can be the answer to the malady of which the clashes in Bihar are symptoms

He has recalled his role in the 1974 movement when his effort was to channelise along peaceful courses what was threatening to become a violent upheaval In the bargain, he met with a totalitarian answer from the regime and the struggle took the form of a battle for democracy

Now, with greater scope for a peaceful struggle, JP has asked the Naxalites to join in a united effort to overcome the local tyrannies Ideological "blinkers", one hopes, will not come in the way of a positive response

Service and Recruitment Matters

A SINGLE national merit examination for several positions in the higher civil service has been again canvassed by the chairman of the UPSC, Shri Kidwai. He has also asked for appellate authority to be vested in UPSC to settle speedily service matters Shri Kidwai has answered Shri Charan Singh's suggestion by saying that the UPSC is no longer bewitched by the charms of the sophisticated urban, and looks to the potential of the candidate. Chairmen of the state public service commissions have agreed that there should be some bias in favour of the candidates from rural and backward areas and from minority communities as well as from poorer families Stress will be on objective tests. All applicants, with the prescribed qualifications, will be given the chance, *ex facie*, to prove their merit, without any preliminary weeding out. Some gadgetry seems to have been found to test this merit in the quickest possible time.

All this may help in the achievement of the social goals of recruitment. But the problem with the administration has been that once selected, an officer—

whatever be the background—becomes a boss and worse. What is required is a new administrative culture, a new ethos. This is where the political leadership comes in. Unless this leadership sets the pace of new styles of governance, all the refinement in selection and placement will be of little use.

Khadi Commission's Plans

THE KHADI and village industries commission has announced plans to set up raw material banks at selected places to ensure adequate supply of raw material at reasonable prices. Mini-industrial estates are to be set up to provide common work places to artisans. These estates will be supported by the raw material banks, financing institutions and marketing organisations. In 1978-79, the value of khadi produced will be over Rs. 75 crore. Production by village industries will be worth Rs. 250 crore. In the next five or six years, the commission hopes to generate five million more jobs. Already some two million people are employed.

The commission has begun manufacturing polyester khadi. Development of new design and market research are being given priority.

Civil Servants Versus Politicians

CHARAN SINGH

I HAVE never been able to understand why a great deal of debate goes on in our country over the relative roles of the political leadership of the government and the administration of the country. In a working democracy, "government" means or ought to mean the government elected by the people and answerable to them. In our system, based on division of powers, the cabinet is the executive It accepts responsibility for all executive decisions. The responsibility is both to Parliament and to the people.

The administration, as far as I can understand, is not the executive but the instrument of the executive In theory, there need be no permanent secretariat; in some countries, the civil servants, at least at the top levels, come and go with the minister, who has a certain prerogative in the choice of his advisers.

The Indian constitution does not explicitly preclude the cabinet's choice of its advisers. However, following the British pattern, we have so far adopted the concept of a permanent civil service. There have been instances, however, of the Cabinet going outside the permanent civil service to choose its top policy advisers.

No Question of Jurisdiction

Terms like sovereign jurisdiction have no meaning in a democracy. Even the people are sovereign only up to a point For example, the people cannot obviously decide upon the guilt or otherwise of an individual. Parliament and the cabinet function within the ambit of the constitution.

There can be no separate and inviolable sphere of administrative jurisdiction, in the sense that the cabinet or the minister cannot encroach upon it. The administrators' job is to understand the policy of the elected government, advise it fearlessly and independently, and carry out the policy once it is decided by the elected government.

Since the entire system is governed by the rule of law and morality, no civil servant can be asked to do what is illegal or unethical. A civil servant cannot take shelter behind a ministerial order, oral or written, to defend an illegal or immoral action. He should have the courage not only to advise fearlessly but to accept the consequences of defying an illegal or immoral order. The minister should be equally prepared to accept the consequences of such an order. Distortions (like the ones during the emergency) take place when there is a breakdown of the moral fibre of the politicians and top civil service.

Let it be clearly understood that the minister, as part of the executive arm of the state, has complete jurisdiction over all matters concerning his portfolio including even minor matters like transfers and appointments. But, a good minister will not exercise these functions, except where it is in the public interest to do so This self-discipline should not be confused with jurisdiction

A Matter of Bonafides

Ultimately the success of a system depends on bonafides. The administrator knowing that a minister is constructively responsible for what happens in the ministry would, in a good system, take care to see that the minister is properly advised and that the minister's orders are honestly carried out. Similarly, the minister will normally not go beyond policy decisions and supervision. In such a system of bonafides there is no scope for conflict of jurisdiction

A word of caution may not be overdue. The concept of constructive responsibility cannot be overstretched. If for every act of omission or commission of the administration, the concerned minister were to accept the responsibility, no minister can remain in office even for a day. Policy, vigilance, correction and insistence on codes of conduct are the principal areas where a minister should show courage, determination and leadership.

The difficulty in India has been the nexus between the corrupt politician and the corrupt administrator. The vast increase in government's powers of control and regulation has only served to provide innumerable opportunities for corruption and favouritism. But, in my opinion, the vast increase in corruption is largely traceable to the failure of political leadership whose duty it was to set standards.

Once the administration realises the minister's uncompromising adherence to the highest principles of ethical conduct, the moral authority of the minister would be a safeguard against administrative misdemeanours. But, this is essentially a task of political leadership.

Before I close, I wish to refer to the criticism of the circular, issued recently by the cabinet secretary, asking the civil servants to familiarise themselves with the contents of the Janata party's manifesto The criticism seems to arise from a misunderstanding. After all, the elected government is guided to a great extent by the party's election promises ; and the civil servants should at least know what these promises are. No one is asking them to accept the party's ideology or to be a "committed bureaucrat". All that is sought is to ensure that the civil servants know the policy of

(*Contd. on page* 30)

NOT MONEY BUT NEW ATTITUDES, NEW APPROACHES, ATTENTION TO DETAIL, PERSONNEL DEVELOPMENT

And We Can Do It

B. SIVARAMAN
Member, Planning Commission

ABOUT OUR thinking for the next round of the plan, it is necessary to be clear about how to go about it, particularly when we are trying to prepare a five year perspective starting from April 1978, and fit into the detailed programmes for 1978-79. Various sectoral plans are being worked out and it will take a little time. As originally contemplated, a certain amount is still available out of the fifth plan outlay for the next year 1978-79. This includes provisions for agriculture, irrigation and allied services. Agriculture and irrigation are being given the highest priority during the next cycle. I hope all the states will keep these allocations reasonably sacrosanct to meet the requirements of funds for the important programmes for the next year.

Stress is also being laid on finding employment within 10 years for all the unemployed and under-employed in the rural areas. This is not in conflict with our objective of production. It is a question of higher production being linked to generating employment for families requiring employment

SYSTEMS MANAGEMENT

We are planning to achieve about 1.5 million hectares of major and medium irrigation in 1978-79. It is necessary to check the reporting carefully. One of the casualties of the emergency was correct reporting. Everybody claimed performance; may be the performance was not there. I am saying this deliberately because the other day Nagarujunasagar reported that as against 25,000 hectares which they should have brought under additional command, the achievement was only 2,500 hectares So, all should have a look at the figures and ensure that targets are reached and financial requirements for the purpose provided But one important aspect, namely modernisation of the irrigation systems needs particular attention. This point has often been repeated but everybody is interested in starting new things, lengthening canals but not in modernisation which requires a tremendous amount of real competence in engineering and systems management. Senior officers of the irrigation departments must attend to this. There are three chief engineers under the irrigation secretary who can help in this task. Assuming that 1.5 million hectares come under major and medium irrigation, I believe, if one looks at the minor irrigation figures, it will also be of the order of about 1.5 million hectares. So in all, we have to achieve 3 million hectares next year for which provision exists both in the form of direct investment and institutional investment These points need to be checked to avoid any shortfall.

The integrated rural development programme is really employment and production-oriented In taking up this, we will have, first of all, to go through all the plan schemes—state, central and centrally sponsored, which have been sanctioned during the last four years—and carefully check if they are really producing the desired results; and if they are not, they may be cut out.

Non-plan sector also deserves a close look. In several of our programmes the whole direction has changed and what was relevant 10 years ago is no more relevant. But the staff is there and expenditure is being incurred and things are going on as usual. For example, on the animal husbandry side individual bulls are being kept or 2 to 3 bulls stationed at various places in each state. Today we have agreed that frozen semen technology shall be used. This requires one common bull centre and a nitrogen plant. A little more capital investment in nitrogen plants will enable our states to do the work much more effectively than all the bulls they have got. Similarly, in fisheries, we have agreed on induced breeding system which is absolutely necessary for composite culture. On the other hand, most of our stock is of doubtful quality. We should select pure breed, in which case the number of centres required will be 2 or 3 at the most in each state. With efficient management it can become a completely commercial proposition. In agriculture, a 25 acre seed farm has no relevance today. There is a minimum size for a farm which is necessary for efficiency. It is time for the states to have a close look at their schemes and weed out those which have become obsolete Maharashtra has already done it and cut out many of its schemes If others also do that and pay attention to some of the programmes which have greater growth and employment potential, progress will be much more rapid than what has been in the past

It is necessary to develop the perspective over the next five years. Our previous practice has been that each state develops its own targets according to its capacity and then we have a common get-together Normally the figures we agree to are those which we feel are necessary for the whole country These adjustments can be made later. For the four years, 1979 to 1983, the details will be worked out after the discussions in April-July when the budget is cleared. There is no need to be agitated at this stage about what is called 'rolling plan'. The further niceties of rolling plan would be left to the mathematical experts who will handle it in the planning division

BEST USE OF LAND RESOURCES

Coming to the programmes which are of vital interest from the objective of higher production coupled with employment, agriculture comes first In agriculture, there is irrigated agriculture and rainfed agriculture. For irrigated agriculture, we have got the command area development programme on which the package approach is being adopted. Even now I find control of irrigation is lacking and the cropping programmes have not been adjusted to the principles stated both in the irrigation commission's report and *that of the national commission on agriculture* (NCA) I would also draw attention to the NCA's recommendations about production. The targets envisaged in 2000 A.D. can be achieved by reducing the area under wheat or rice and most of the cereals and extending the areas under pulses, oilseeds, etc. We hav

to put the available land resources to best use. The states will have to build this approach to crop planning into their system. This does not require money; it only requires scientists getting together with extension workers.

In this context, I would suggest that the first thing to be done is to introduce what is called the 'benor' system of extension with suitable modifications. This is the key to the whole system and this depends on discipline, supervision and subject-matter specialists. So, next year we start building up cadres of these officers. Water management specialists and farm management specialists are absolutely essential at the district level. The farm management specialists must be experts in mixed farming. Plant protection expertise is very poor. So, in consultation with universities and other training institutions, we have to impart the necessary training and build up the cadre. All this should be done from now onwards so that at least by next kharif we are able to cover a reasonably widespread area for agricultural development.

Water-shed Management

Regarding rainfed agriculture, I think we should now accept that water-shed management holds the key. Gujarat has certainly done very well in it. I had suggested to Gujarat that I would like to see a water-shed management programme for one mini water-shed in each block in 1978-79, thereafter three and the year after that six and then nine. In this way, we can advance from year to year as our expertise gathers momentum Then, at the end of five years, more than half of the rainfed area will be covered by managed water-shed. States which have not really tackled this problem should now try to build up the expertise and train their personnel. All the soil conservation men will have to be trained in the new technology. Foresters, animal husbandry men and agricultural experts will have to be trained to plan this. This itself will be an integrated development approach.

So, if the states have understood water-shed management, they will automatically understand integrated development in agriculture. But it will take some time. I have requested the concerned ministry to see that necessary training programmes are organised quickly. The idea is ancient. With the same money you can start off next year doing a much better job. It is really organisation, training and deployment of the right type of people. Money is not required for this, except marginally. Whatever is required must be fitted into this comprehensive programme.

In regard to the actual cropping system, I would like everyone to consider seriously the actual market situation in each state. For example, Gujarat may feel that they must grow more paddy. But a situation has come when we are able to free the paddy market for the whole of the country. This could not have been done unless there was some sort of understanding that this has come to stay. This means that our rice production is stabilising itself. So a high cost paddy production does not fit into the picture Similarly, a high cost wheat production does not fit in. The farmer may not know it. It is up to the states to give him alternatives about various crops linked with needs. This exercise will be a continuing one during the next five years. For example, Kerala is not able to consume all its tapioca. Meanwhile, we are extending tapioca production in Tamil Nadu and also asking the north-east of this country to increase its tapioca production We have to think very seriously whether we are going to export tapioca or use it for animal feed for the development of animal husbandry. These are all problems that are arising and it is time that all give thought to it.

Milk Programme

Now, on the animal husbandry side, there is need for a close look at two important programmes : one is milk production and the other is sheep production. For milk production, we have operation flood phase I and after about seven years of working, according to available figures, we have covered directly about 6.8 lakh animals out of which five lakh are in Gujarat and the rest in other parts of the country.

Regarding operation flood phase II, it is expected to cover about four million animals in the next five years. I think that is a target that we have accepted I think it is time to see to it that principles are evolved for operation flood, that is, the primary cooperatives of producers linked to a union which can initially be a body with nominated directors. Agreed principles have already been evolved, but somehow there is an internal conflict between the animal husbandry department and operation flood in the cooperatives and things are not as satisfactory as they should be. Gujarat has moved ahead, because the principle has been observed.

As a parallel programme, we are also encouraging the Urlikanchan foundation, Bharatiya agro-industries foundation we will be taking up block schemes in selected areas. We will select some areas where the cross-breeding and fodder programmes, which are basic to milk production, are in operation. Operation flood concentrates more on the end product, that is, milk and its after use. So, we have to find a tie-up between the two at some stage But we are also thinking very seriously about milk marketing itself. This deserves attention as well. The system must enable milk to be distributed in the areas of production, in the small townships and also milk products will have to be produced which will be of use for general consumption. Cheese is certainly good, but it is for special consumption ; *khoya* is for general consumption. I think that instead of pasteurising the milk, it can be heated to the boiling point and cooled; it will have better keeping quality and can be distributed to the local areas without difficulty. As regards frozen semen technique, I think one bull centre is enough for every state with a nitrogen plant and what is called a libarary of semen. I think we have provision for giving each state a herd of exotic cow so that future bulls can be developed. It is part of the fifth plan. But it has not spread much. We are also building into it what is called the progeny testing o the bulls. Now, I would like to see that this is buil into one system. Naturally, animal husbandry depart ments will have to be strengthened and the nationa commission on agriculture has suggested that ther must be subject-matter specialists in animal hus bandry at the district level. There is a central secto scheme for this also. I do not think many of th states have taken advantage of this scheme for th simple reason that they have not got the experts. So this is another sector where the states should have look at the expertise available, the type of subjec matter specialists that will have to be brought in s that necessary action is taken before the next seaso

Sheep Rearing

The other important programme which I ha already referred to is sheep rearing. There is a b

market for sheep meat; please do not get into the wool syndrome because that yields limited benefit to the sheep breeder. His main income comes from the sale of meat. Even from the best of marinos, it is the yield of meat that matters. So I would suggest a look into the cross-breeding programmes from these aspects and link it up with some system of fodder development. I had been to Bihar recently. Madhya Pradesh and Rajasthan have got areas where fodder development is more profitable than grain development and recently in Kutch, the Satguru Sewa Sangh Trust has developed certain fodder trees, particularly what is called '*ku babul*' and also 'tree lucern'. Even with the scarce water supply quite a lot has been done and some of these will be best suited for the marginal scrub jungles, where we can introduce fodder trees without much difficulty. It is also suitable for panchayat lands where nothing is growing at present. Protected forests can be reserved for afforestation with these fodder trees and certain rights on identified areas can be given to the poorer families who should look after the trees and gather the fodder which will be fed to the animals being developed under the animal husbandry programme by the poorer families within the village. Then, the milk programme will become an important part of the income generation programme, particularly for the poorer sections and will increase their employment.

Thus, a very aggressive programme of farm forestry and social forestry with cross-bred animal husbandry programme can be evolved. Immediately, the problem of availability of cows may arise. We have been buying cows in the market under various schemes at high cost. One important thing which Urlikanchan system has shown is that they can produce a cross-bred heifer out of a cow going to the butcher and priced at Rs. 50. Quite a lot of cows of no value today can acts as incubators for the cross-bred. I think this has been discussed in the NCA report also but has not received much attention. So, I would like all to pay special attenntion to this programme. As regards social forestry and farm forestry, this is a central sector scheme and I hope it will continue next year also with greater funds.

Now, the same fodder can be utilised for sheep also and there is a pressure that goats should also be looked after. There is no particular objection if stall feeding of goats can be had and this can be done if we can grow fodder trees and ensure cutting of branches and then offering these to the goats instead of goats trying to take these themselves. The forester would also allow this. There can be a discussion with the foresters. But the first thing is about growing the fodder trees. Pasture development can also be done.

The sheep programme will be useful. But marketing is a problem and special marketing expertise will have to be built up. Marketing experts will have to be found. These two programmes should be launched during the next two years.

Fisheries

Then, coming to fisheries, about two or three centres per state will be more than enough for supplying all the seed for composite fish culture. We can distribute the seed or the fry to far off centres in oxygen bags and can then develop it in the areas planned for stocking locally. Fishermen can be involved in the development of the fry from the seed or from small fry and selling it locally. In West Bengal with brackish water, about 50,000 poor families are now earning a livelihood catching the brackish water fry from the streams and then selecting out of them the good fry and selling it to fishery owneds. Similarly, we can develop quite a lot of fishermen families in the interior by linking it to the induced centres. There is an employment aspect to this.

Composite culture is not possible unless the tank is properly renovated and whoever does it should get a long-term lease. But I have noticed that single year leases are given, auctions are held, tanks are not given to fishermen on a long-term basis.

Commercial Forestry

Unfortunately, the whole concept of commercial forestry has not been properly understood. I would suggest an early get-together of the forest officers with the experts in the ministry of agriculture so that the institutional resources could be drawn upon. Madhya Pradesh, for example, should have a very aggressive programme of forests and necessary institutional finance should be utilised. Another aspect of forestry as a provider of employment has not received adequate attention. The report of the Hyderabad Institute indicates that foresters are not using local people for any of their operations. They have let out all the operations to be carried out by contractors and contractors bring their own labour from outside. In fact, forests have been exploited by rich people who bring their own people. This has to be looked into.

During the last three years we have been offering money to state chief conservators for plantations. But use has not been made of the funds in an adequate manner although we are prepared to give more money. It needs to be examined as to what is happening and where capacity to do things is lacking. Is it the lack of officers and the staff to do it? I feel that rangers have not yet been trained. The staff should have a close look at what they have programmed for five years and whether this is sufficient to give employment and support the animal husbandry and farm requirements. There are not sufficient centres in the country for training of rangers, because it was thought that it could be controlled from Delhi.

Then, we have to think about extension forestry. Sheesham and farm forestry are important. The other day in Bihar I was in Purnea. In the Kosi canal system, Sheesham plants have been grown on the bank of the canal. Within 10 years they have already grown well and in 25 years each tree of Sheesham will be worth Rs. 750 to Rs. 800 at the present price; what the price will be 15 years later we cannot say. Sheesham should be planted wherever possible. Sheesham forestry and farm forestry are certainly employment-oriented. I suggest to all the states to have a look at this also, and see whether they can include this in the plan.

Integrated Rural Development

Now, I come to the integrated rural development programme. I must draw attention to the emphasis being laid on rural development by the new government and its commitment to achieving full employment within a period of ten years.

In India, we have experimented with a number of strategies of rural development and certain norms and acceptable parameters have now emerged. We have beneficiary-oriented programmes like SFDA/MFAL with a major emphasis on the development of weaker

sections. On the other hand, we have area programmes like the drought prone areas programme and the command area development programme, the emphasis of which is on the development of the 'area' subject to weaker sections being enabled to take full part therein. The drought-prone areas programme incorporates elements of area development approach as well as the weaker sections development approach. Under integrated rural development, it is proposed to integrate the area development and weaker sections development approaches under one programme and implement it as a package to achieve the twin objectives of rural development and full employment which is now the goal set before the country by the present government. As the emphasis is on decentralised planning, it is proposed to give much more freedom of operation at district level within accepted norms and parameters worked out during the past years. The programmes at the district level will be formulated realistically taking into consideration the local resources and needs. The programme has to be well thought out and will have a five-year perspective.

The mix of programmes envisaged under IRD programme will have normally the following components in most areas : (i) crop production; (ii) animal husbandry and dairying; (iii) poultry; (iv) piggery; (v) sheep rearing; (vi) fisheries; and (vii) village and small industries programmes. The financial requirements for these programmes should be met from different sources—centre, state and institutional finance—and should be put under one budget head if possible. In this connection, I would like to mention that in tribal development in the states all projects have been put under one major head with sectoral sub-heads under the control of one secretary. It could be examined whether a similar system could be adopted for the IRD programme also. It is proposed to give a lump sum amount from the centre for implementation of these programmes and a similar approach is proposed to be followed in respect of the states share of the plan. Details regarding criteria to be used in making *inter-se* financial allocations in respect of districts are being worked out and the states will be informed as soon as this exercise is completed.

Micro-level Planning

As regards micro-level block planning, it is proposed to cover about 50 per cent of the blocks in the country for full employment within the next five years and a beginning has to be made next year itself. For this purpose, much more detailed exercise will be required to be done. After identification of the number of families coming within the disadvantaged group or the weaker section etc., suitable programmes will have to be formulated. As a first approximation all the blocks now under SFDA, CAD and DPAP will be covered for a full employment approach in three or four years. It is also proposed to cover about 300 new blocks during 1978-79 for detailed block level planning for full employment and the states may work out their share on a *pro-rata* basis and take up some blocks for detailed planning immediately.

We have to follow a very selective approach. The programmes to be taken up should fulfil growth and employment objectives. The impact of some of the earlier programmes was not very definite and, therefore, both the plan and non-plan programmes which are non-productive or obsolete need to be weeded out.

I would like to emphasise the need for reorganising and bringing all extension work in the area of agriculture and rural development under one umbrella. For employment planning and manpower budgeting, after the programmes are formulated at the block or district level, a situation may arise where not enough labour is available for the execution of works. This may appear as a strange phenomenon in the Indian context facing large unemployment but it is a problem which may arise for which states will have to find appropriate solutions.

Corporation Idea at District Level

I would like to give thought to the need to have an appropriate agency at the district level which has the necessary administrative and financial authority for implementation of IRD programmes. States already have some experience under SFDA, DPAP and CAD programmes and these agencies have been working well. We should think over the types of agency to be set up.

I would like to emphasise here the need to explore fully the possibilities of providing self-employment in the tertiary sector. In this context, I may mention that we have had some experience under the PIREP and growth centres schemes. Available skills have to be utilised and necessary training provided for upgrading the skills. Problems of rural poverty and unemployment can only be solved by creating employment opportunities in rural areas and ensuring fair remuneration for labour. It is also essential to have institutional arrangements for input supply, credit, marketing, development of village and small industries etc. The multipurpose viable cooperative societies should be the answer for financing different activities envisaged under IRD plan which will also be a safeguard against the exploitative system. The credit system will have to be made more elastic with the necessary tie-up with different programmes.

The new approach to planning also envisages much more active involvement of voluntary organisations and this will not be a once for all involvement but continuous participation by these organisations in the planning process, the formulation of block level plans as well as their implementation.

I may also refer to the scheme of the government of India to involve industrial houses in rural development programmes. The Bharatiya agro-industries foundation has done very good work in the animal husbandry programme. Likewise negotiations are in progress with Hindustan Lever for their involvement in the fisheries programme which still remains weak. It is proposed to involve the industrial houses in areas requiring high level technology.

I would like to stress at the end that as the preparation of detailed action plans for integrated rural development, based on comprehensive resources inventories, is taking unduly long time, some obvious programmes which would find place in any scheme of integrated rural development of the area have to be identified for immediate implementation. In view of the highest priority given to rural development and full employment, the government are determined to go ahead with the implementation of programmes to fulfil the national goal, instead of waiting indefinitely for resources inventories as envisaged earlier. □

SIDE TRACK

Students' Involvement in Relief Work

HUNDREDS of National Service Scheme volunteers have been involved in relief work during the floods that revaged various parts of the country recently.

At Kharagpur, the Kangsbati canal, running close to the Indian Institute of Technology campus, was swollen by overnight rain, overran its banks and threatened about 500 people living in mud huts. A contingent of about a hundred volunteers of the N.S.S. unit immediately left for the area under a teacher-in-charge on receipt of the news. They cleared the nullahs, repaired the huts and baled out water accumulated in the courtyards. The relief operations continued for well over a month. The boys also helped the affected people with clothes and money.

In the lake areas near the Samdhar-Phulera road in Rajasthan, the menace of the rising waters was compounded by further heavy rain. About two hundred students of the Government Colleges at Shakambhar and Nagpur got down to digging channels to drain out the water and piling sandbags to save the residential areas While keeping vigil, they distributed clothes, food and medicine to the affected people.

Cutting Field Channels

In Midnapore district, the muddy turbulence of a number of rivers like Kas-oi, Silabati, Porang and Kupai spilled over into nearly a thousand square kilometres of paddy fields Students of the local college, with the help of local farmers, laid out field channels, saved the crop and kept up a supply of food and medicine.

In the villages of Bireshwarpur and Khelaampur, the N.S.S. volunteers were joined by the local block staff, as they went about laying cement concrete pipes to drain out water.

The supply of life-saving drugs and food was a recurring theme in such activities. The N S S volunteers of the Sabang Sajani Kanta Mahavidyalaya in West Bengal did not stop with saving about two hundred and fifty families, most of them belonging to scheduled tribes as the river Kalanji crossed the danger mark They helped the medical staff in taking prophylactic action against cholera and small-pox

In Delhi University, Shivaji college students took up flood relief work on the Najafgarh drain by laying sandbags. A number of other educational institutions of Delhi like P.G.D.A.V. college, St. Stephen's college, Delhi college of engineering, Indian institute of technology, Bhagat Singh college, all-India institute of medical sciences, Jawaharlal Nehru university and Jamia Milia university also took up the challenge posed by the floods.

Food, milk and medicines, contributed by charitable organisations, and also by students themselves, were ferried across to marooned villagers, many of whom had sought shelter on the branches of trees. As stranded people in Dharampur, Najafgarh, Nangloi, Raja Garden, Jahangirpuri and other villages were moved to safety, they were provided with food and temporary shelter.

In Haryana, the N.S.S. unit of S.A. Jain college sent nearly 1,200 food packets to the suffering villagers through the district authorities, besides 40 kgs. of flour and bundles of old clothes for those rendered destitute. Interns of the medical college at Rohtak formed themselves into groups to serve over 200 villages in Rohtak and Sonepat districts. Twenty-two other colleges came forward to give assistance in cash and kind Twelve thousand rupees in cash, 7,500 pieces of cloth, 5,000 kg. of foodgrains and about 3,000 food packests were distributed for the use of the flood-hit Haryana agricultural university students offered the services of its vets for the protection of animals.

IGNORAMAN

Wants to know

Whether there is scope for a new party to be called "Emergency Party or "Sterilisation Party" or "Democracy Derailment Party" or "Midnight Requisition Party.

In Assam, N S S. units of Gauhati University were pressed into service. Volunteers of Tangla college tried to divert the course of the river Novoi by digging up a canal but failed At Thangaldoi, students helped in transferring families and distributing rations. N.S.S. volunteers also extended their assistance to local authorities in relief operations following the train disaster at Kahabari on the Rangia-Fezpur railway line.

In Karnataka and Orissa

Down south, in Karnataka university, students of Shri Thanjuvateshwar college at Honnavar involved themselves in raising funds for the flood-hit, particularly Harijan families. At Ramadurg, students of C.S. Bembalji arts and science college raised about five hundred rupees for distribution among the affected people At Hubli, S J.M.V. arts and commerce college, Nehru arts, science and commerce college, J.G. college of commerce, P.G Jabin college of commerce and Kadasiddeshwar arts and H.S. Kotambai science institute launched a combined programme of assistance and ran up a total of over four thousand rupees in cash for this purpose.

In Sagar University, students of Narmada Mahavidyalaya kept a round-the-clock vigil at Hoshangabad, Madhya Pradesh, to warn the residents against floods. In Orissa, university students set up a camp to assist farmers in agricultural operations and to vaccinate cattle. In Uttar Pradesh as flood waters reached out to nearly twenty districts, N.S.S. units in the universities and affiliated colleges were alerted for relief work. In Barsana, Mathura district, students undertook construction of kaccha bunds for protective purposes. Prophylactic measures for livestock were taken up by students of the college of veterinary science and animal husbandry, Mathura.

Goals of Rural Oriented Planning

—DR. P. S. PANDEY

ACCORDING TO the 1971 census India had only 20 per cent urbanisation which means that 80% of India's population in 1971 lived in the villages. In Europe, 80 per cent of the population lives in cities while only 20 per cent lives in villages. If we analyse the composition of the labour force, the picture in India looks more dismal. Of the total working population in India, 72 per cent is engaged in primary industry, that is, agriculture, animal husbandry etc. Only eight per cent of the total labour force in North America, 28 per cent in Europe and 45 per cent in the Soviet Union are engaged in agriculture. The percentage of the working population engaged in secondary industry, that is, manufacturing, in India in 1961 was only 12 while in America and Europe it was 39 and in the Soviet Union 28. The percentage in tertiary industry (service and trade) in India in 1961 was 16, in America 53, in Europe 34 and in the Soviet Union 27.

While there was 92 per cent industrialisation in America, 72 per cent in Europe and 55 per cent in the Soviet Union there was hardly 28 per cent industrialisation in India around the year 1967. Comparing India's case with the developed countries in the west, we find that with 20 per cent urbanisation these countries had over 50 per cent of their labour force engaged in secondary industries. This is the state of our backwardness. Even with only 20 per cent urbanisation India is supposed to be over-urbanised because, (1) this urbanisation is not backed by adequate industrialisation and (2) it is mainly the result of the rural push-unemployed, that is, hungry and poor people migrate to the cities in search of jobs.

Planning in India right from the beginning has been on the wrong track. It is obvious that large scale industrialisation which is mainly labour-saving cannot solve the problem of rural unemployment. Our problem is not only to modernise our economy symbolically and to show to the world that we too have large industries, international airports and big units, sprawling metropolitan centres and are thus entitled to take our seat in the comity of developed nations of the world. We have on the other hand to deal with the gigantic problem of ensuring a fairly decent standard of living to the 80 per cent of the people living in the villages along with those unfortunate ones who have migrated to the cities and are without a job, without a home and without a roof over their heads

RIHGT PRIORITIES

The Janata Party in its election manifesto has given top priority to agriculture, agrarian reform, development of small-scale and cottage industries and promoting a healthy rural-urban nexus. The crux of the rural problem is the under-employment of the working force engaged in agriculture. Our agriculture is unfortunately neither labour extensive nor labour intensive. Our large population and man-land ratio rules out labour extensive agriculture. This rules out labour intensive agriculture too. For there are too many hands in our villages than there is land for cultivation. The mistake that the previous government committed over the years was to depend on large scale industrialisation and family planning as the stock solution to the problem of rural unemployment.

One of the basic strategies of our plan in Uttar Pradesh should be to divide the state into regions according to the specific natural characteristics of the areas and to locate centres of industrial growth. The government should give full scope for the growth of local innovation and entrepreneurship. At the same time efforts will have to be made to build up infrastructure for the development of village industries. Basically, the tasks in rural development are : (a) to increase agricultural productivity, (b) to improve storage and marketability of farm produce, (c) to improve the generation of power and strengthen its distribution and (d) to decentralise the entire process of planning so as to make the people feel that schemes are not imposed on them from above but are formulated and implemented with their active cooperation and consent. The essential requisite for agricultural output is the availability of the right inputs at the right time and, of course, at the right price.

The construction of roads, bunds and bridges, primary schools and health centres should be intensified in order to prepare the infrastructure for rural development and also to reduce the level of unemployment in the villages. Extension and training services should also be made available to the rural people so as to enable them to understand and appreciate new farm technology Orientation programmes should be sponsored for groups of farmers in the correct use of available inputs and the adoption of modern farm practices

BRIDGE URBAN-RURAL GAP

It should be our endeavour to integrate the village communities with the cities in a way that each may promote the other's interests and there is no unnecessary gulf between the two If we can create adequate job opportunities in the villages, which we can, the drift to the cities will be arrested. Similarly if the villages can produce consumer goods to cater to the needs of the cities, the cities will become a potential agency of rural development. In the western countries there is not much difference between the villages and cities as far as physical amenities are concerned European villages have pucca roads and well-built cottages and a fair measure of the modern amenities which are available in urban households. In certain respects the villages are economically better off than the town dwellers. At least the villagers live in separate cottages while the urban people have to live in flats which form part of multi-storied buildings shared by many. In India there is a world of difference between the cities and the villages in respect of physical amenities. This difference must be minimised and the villages brought nearer to the cities This should be another objective of a rural-oriented development plan.

Role of the Reserve Bank in Agricultural Credit

G. P Bhave

AMONG THE central banks of different countries in the world, the Reserve Bank of India plays a significant role in agricultural credit, both in absolute and in comparative terms.

The functions of the Reserve Bank in the sphere of agricultural credit could be divided into : (1) regulatory and financial functions, and (2) promotional and developmental functions. It makes available credit limits for the following purposes at different rates of interest, its loaning to the priority sectors being at a concessional rate : (1) seasonal agricultural operations, (at one and a half per cent below the bank rate), (2) marketing of crops including cotton and *kapas* (at three per cent above the bank rate), (3) purchase and distribution of fertilisers (at 3 per cent above the bank rate), (4) short-term loans to agricultural refinance and development corporation (at bank rate), (5) medium-term loans for agricultural purposes (at one and a half per cent below the bank rate), (6) conversion of short-term loans into medium-term loans in scarcity affected areas (at one and a half per cent below the bank rate) from the agricultural credit stabilisation fund, (7) medium-term loans for purchase of shares in co-operative sugar factories/processing societies (at bank rate), (8) loans to state governments for contribution to the share capital of co-operative credit institutions (at 6 per cent) from long-term operations fund, and (9) long-term loans to agricultural refinance and development corporation (at 6 per cent).

Regulatory Functions

As far as regulatory functions are concerned, the co-operative banks are now within the purview of the banking regulation act, 1949 (as applicable to co-operative societies). As such they are governed by the norms and disciplines pertaining to the quantum, terms and conditions of certain types of advances as well as permissible volume of loan outstandings against certain sensitive commodities which are susceptible to price rise. As financer, the role of Reserve Bank in the sphere of agricultural credit has considerably increased as would be seen from the fact that while in the year 1950-51 the Reserve Bank sanctioned credit limits for seasonal agricultural operations to the extent of only about Rs. eight crore, for the year 1976-77, the total limits sanctioned for this purpose were Rs. 696 crore. The increase in the total limits sanctioned has been specially significant since 1972-73 mainly due to factors like increased cost of agricultural inputs, programmes of universal membership and steps taken to regularise the co-operative credit structure. These limits have also a bearing on the total loans and advances by the co-operatives for short-term agricultural purposes (presently about Rs. 1,100 crore), the Reserve Bank limits being of a supplementary nature. The operation of the Reserve Bank's credit limits is subject to certain important norms like the maintenance of non-overdue cover, performance of the co-operative banks in making at least 20 per cent of their advances to small farmers and weaker sections, maintenance of seasonality in operations on the credit limits and mobilisation of deposits.

There has not been much progress in the development of co-operative marketing and processing and hence limits sanctioned during 1976-77 amounted to only Rs. nine crore. Marketing credit is available from the Reserve Bank only to the extent of recovery of co-operative dues by linking production credit with marketing. For purchase and distribution of fertilisers also, after the consortium of commercial banks decide upon their share, supplementary requirements are met by the Reserve Bank.

Support to Debenture Schemes

In the sphere of long-term agricultural credit, the Reserve Bank's role is mainly that of a co-ordinator in the sense that it organises support to the debenture programmes of the land development banks whose main responsibility is to disburse investment credit for minor irrigation, agricultural machinery etc. Besides, medium-term limits for pumping sets, milch cattle, etc., are made available at one and a half per cent below the bank rate, the total limits for the year 1976 sanctioned being Rs. 15 crore. Such medium-term loans are also subject to the same discipline as schematic loaning, for example, arrangements for collection and marketing of produce. The grant of medium-term conversion loans at one and a half per cent below the bank rate is related to the existence of scracity conditions in specified areas affecting the cultivator-member's ability to repay his short-term loans.

Apart from statutory inspections, the Bank has been conducting special studies like those of overdues, and of special problems in states of Madhya Pradesh, Uttar Pradesh, Bihar and Rajasthan. Recently, the Reserve Bank has initiated a scheme for intensive development of selected districts under which special officers are alloted by the Bank to work in full collaboration with the co-operative and commercial bankers as well as government officials in the districts to fomulate bankable local schemes and prepare concrete action and credit programme for each of the 41 seleced districts

To sum up, the Reserve Bank has tried to bring about in its policies as well as working methods a suitable blending of both regulatory and financial functions as well as promotional and developmental functions and has been trying to play its role as a coordinartor too.

A Case For Small Capacity Granulation Plants

DR. SATYENDRA VARMA
and
D. P. VASUDEVA

ABOUT tw[illegible]-five per cent of the total area under cultivation has assured irrigation and accounts for [illegible]5 per cent of the total consumption of fertilizers in the country. Even in these areas, annual fertilizer consumption amounts to only around 27 kg of plant nutrients per hectare while the national average is about 17 kg/ha of cropped area. These figures are well below the world average of 57 kg/ha and still lower in comparison with some individual countries For instance fertilizer consumption for 1973-74 in China, Egypt, Israel, France and South Korea was 45, 161, 136, 311 and 317 kg/ha respectively. Of a total of 380 districts in the country, 44 districts consumed about 40 per cent of total nutrient during the year 1974-75.

THE IMBALANCE

All the primary nutrients—nitrogen, phosphorus and potassium—are essential for plant growth. Any deficiency of one of them will be a limiting factor in agricultural production. The general practice in India is to apply NPK nutrients as basal dressing followed later by a nitrogenous fertilizer for top dressing. For optimal agricultural yield and soil fertility, the ratio of nutrients and their doses must meet agronomic requirements. Amongst the factors affecting fertilizer efficiencies, unbalanced fertilizer application is rated as one of the most important factors causing low agricultural productivity in India. A striking feature of the Indian science has been that the consumption of P_2O_5 and K_2O is significantly less than the consumption of nitrogen. The prevalent nutrient consumption ratio 7.5:1.7:1 far exceeds the recommended overall ratio of 4:2·1 and is much at variance from the world average figure of 1.9:1.2:1. The abnormal emphasis on nitrogenous fertilizers is a general trend not restricted to a particular region or state. To what extent the ratio of nutrient consumped is due to the low level of nutrient application is not known But it appears that the level of application of P_2O_5 and K_2O is largely determined on the consideration that these nutrients do not become the limiting factor in the agricultural productivity ignoring the advantage of interaction effect of nutrients. Hence besides the total consumption of nutrients, the relative consumption of both P_2O and K_2O needs to be stepped upto improve productivity.

AVAILABILITY OF NPK

The various nutrients available internally and from imports during the year 1975-76 are indicated in Table II. It is significant that only 11 per cent of the total nutrients available are from NPK complex and compound fertilizers. The includes 0.28 million tonnes of imported fertilizers during the year 1975-76 in which the grades 15-15-15 and 17-17-17 predominated. The Indian mixed fertilizer industry supplied NP/NPK fertilizers through its 41 granulation units and nearly 500 mixing units. These units are of small capacity, mostly in the private but some in the cooperative sector. Capacity utilisation is low and variable, depending on the availability of raw materials at the right time and on profitability considerations. These units are also unevenly distributed. Whereas the mixing units are largely concentrated in the southern region of the country, most of the granulation plants are located in the western and central regions. Only a few granulation plants and mixing units serve the northern and eastern parts of the country, with the result that the availability of balanced fertilizers still presents a problem.

Fertilizer consumption projections carried out by the Fertilizer Association of India recently envisaged an increase in the consumption of total nutrients from 3 54 million tonnes to 7.49 million tonnes in 1983-84, an increase of 126 per cent in the consumption of nitrogen, 66 per cent for P_2O_5 and 96 per cent for K_2O from the projection levels for 1976-77. Thus the projected pattern of nutrient consumption ratio is not markedly different from what it is at present. For balanced fertilization and to ensure efficient use of nutrients it is necessary to improve the supply and distribution of NPK fertilizers. This is possible when a larger proportion of nutrients is supplied in a single package.

THE ALTERNATIVES

The alternatives available for this are : Dry blends, complex and compound fertilizers and mixed fertilizers in granular form.

Though dry blends of pulverised fertilizer materials are a convenient and economical way of supplying balanced nutrients to the farmer, they have disadvantages. The difficulty in providing a product of standard quality and composition is a serious handicap Moreover segregation of constitutents leads to nonuniform distribution of nutrients in the fileds when applied annually This leads to inefficient use of an already limited fertilizer input. Therefore, in any advance planning, this mode of supply of materials to the soil should gradually be replaced by NPK granular fertilizers and by NPK complex/compound fertilizers.

The sucess of bulk blends in the United States has drawn keen interest in granular blends as a means of supplying multi-nutrient mixtures to the soil. The raw materials used are in granular form with matching particle sizes to prevent segregation and to ensure a better quality of the product. Use of DAP in blends gave a further glip to their popularity in the United States, as the high nutrient content of the blends reduced further the unit cost of plant food The success of bulk blends in the United States is due as much to the package of services offered to the consumer, with precautions taken to avoid segregation during transportation and placement in the fields, as to the blend itself. Furthermore, blends have been made even more attractive by the introduction of granular potash (KCl) and granular urea to match the size of DAP, while bulk spreading facilities have obviated the necessity of bagging the fertilizers, thus further reducing the cost of delivered nutrients. In India, now or in the near future, it is difficult to adopt such a practice without radical changes in farming techniques Non availability of raw materials of matching sizes is another factor that must be taken into account while examining the feasibility of adopting granular blends for supplying balanced fertilizers to the soil.

Large-capacity complex and compound fertilizer plants are capable of providing high-grade fertilizers of selected standard nutrient ratios economically These multinutrient fertilizers would serve the regions whose agronomic requirements match the ratios and grades produced by a particular plant. For historical reasons, the growth of the Indian fertilizer industry has centred round the production of ntrogenous fertilizers The expansion of the industry with respect to complex and

npound fertilisers has not kept pace with the increase in nitrogen capacity. In the year 1975-76, out a total of 22 fertiliser plants producing nitrogenous tilisers, only eight produced, in addition, NP and 'K fertilisers. The restricted choice of formulations 1 grades obtainable in such complex fertiliser plants a disadvantage, and this is a major consideration India, where the objective is to use the available .rients as efficiently as possible to meet widely vary-, agronomic demands. Expansion of this sector, wever is necessary to meet the growing demand for ndard grades, as indicated by the fact that considere quantities are at present imported.

Small Capacity Plant

In order to increase the efficiency of fertiliser input, it application of total nutrient requirements is inasingly being advocated to minimise nutrient loss aching, volatilisation and denitrification) and to satisthe peak stages of fertiliser requirements. There is, refore, an added justification for making NPK forllation designed to meet the agronomic needs of rescted areas. This can be achieved by granulating solid v materials to produce NPK fertilisers in a small pacity granulation plant catering to the need of an jacent area. Several such units, functioning as relers, supplying directly to the farmers would improve distribution network and would ensure increased ailability of NPK fertilisers to the users These units ly also provide other services to the farmers, for ample, arrangement for soil analysis on the basis of ich fertiliser formulations are made and supplied iese units can also supply micro-nutrients and pestiles, wherever necessary In short the concept of escription application of fertilisers would have to be imately accepted. The conventional process of granuion in a rotary drum with provision of steam to uti- high temperature coefficient of solubility of nitronous fertilisers to generate adequate liquide phase for inulation followed by drying is preferably owing to simplicity of the process and flexibility with respect the wide range of formulations, grades and ratios of trients produced The optimum size of such a plant suring fair return on investment has been found to 5 tonne an hour or 36,000 tonnes a year The eak down of cost is given in Table I. The granulation st (including packaging) for a plant of such a capay is estimated to be around Rs. 200 per tonne of 'K fertiliser produced and would employ over 100 rsons including graduates in science, engineering and riculture.

Raw Materials

From the point of view of availability of raw materials granulation plants it is evident that urea occupies dominant position amongst the nitrogenous fertilisers. digenous production of urea as well as imports, are in excess of other fertilisers (Table II). Among the ligenous phosphatics, single superphosphate tops the t.

Urea and superphosphate are however incompatible, ey can neither be mixed nor granulated together nmoniation of superphosphate renders it compatible th urea, but in this process the water-solubility of O_5 is significantly reduced. This is a serious limitan, as many of the state governments insist on having higher proportion of P_2O_5 in water-soluble form in 'K products. Calcium ammonium nitrate, too, prents a problem to granulation plants when used along th superphosphates, as the presence of limestone

Table I: Cost of Granulation (Including Packaging)
(Production 36000 Tonnes/Year)
(based on Pilot Plant data)

Erected Cost of the Plant — Rs. 78 94 lakh
Working Capital — Rs 88 39 lakh

		Annual Cost, Rs. *Lakh*
(A) Variable cost		
1. Coating agent		2.88
2. Utilities		7.50
3. Material handling		[illegible]
4. Bags		25.60
5. Contingencies	@ 5% of 2 to 4	1.88
Total variable cost		42 45
(B) Fixed Cost		
6. Labour and overheads		5.4[illegible]
7. Consumable stores and maintenance materials	@ 3·5 % of Rs. 78 94 lakh	2.77
8. Insurance, taxes, and contingencies		0.84
9. Depreciation	@ 10% of Rs. 78 94 lakh	7.89
10. Interest on working capital	@ 14 % of Rs 88.39 lakh.	12.37
Total fixed cost		29.27
Annual cost of granulation (A) + (B)		71.72

(This works out to less than Rs. 200 per tonne of granulation including packaging)

causes reversion of water-soluble P_2O_5 to an insoluble form during processing and storage. Limited quantities of ammonium sulphate-nitrate and ammonium chloride are available and are used mainly for top dressing. The extent of use of these materials to the production of NPK fertilisers is limited and of little consequence. Thus the compatability factor reduces the choice of raw materials. Ammonium phosphates and urea are, however, compatible Mixed fertilisers of high nutrient content would be available, from Urea, NAP or DAP and potash. The super phosphate, however, can be used with ammonium sulphate and potash to produce low-nutrient formulations.

As urea is at present and is likely to remain in future, the predominant nitrogen carrier, its use in NPK fertilisers is essential. For any effective use of urea, new capacity would have to be built to provide ammonium phosphates both for captive use in making NP/NPK fertilisers and for distribution as raw materials for granulation plants. Mono-ammonium phosphate with its superior keeping quality, greater thermal stability and comparable high nutrient content has distinct advantages over di-ammonium phosphate as a PO_5 carrier for NPK granulation. Till indigenous capacity for ammonium phosphates is built up, these may be imported, specifically for use in granulation plants. In the Indian context low-analysis NPK fertilisers, based on superphosphate along with ammonium sulphate and potash, would continue to play a complementary role towards supplying balanced nutrient to the farmer thereby using available superphosphate capacity. To start with the granulation plants may be located in districts which have a low nutrient consump-

pn level, but have a sizeable proportion of their cropped area under assured irrigation. Over hundred such districts have recently been identified for implementing the government plan for intensive fertiliser promotion. The granulation plants may form an integral part of such a plan

SUMMING UP

The extra cost incurred in making granular NPK fertilisers in small capacity plant should be viewed in the context of the following benefits : fair return on investment by the granulation plant, availability of balanced grades of fertilizers of assured quality and composition close to the consuming areas, consistency with the future trend of making formulations to suit local requirements, rendering a package of services to the farmers, increase in agricultural productivity and consequential improvement in the living standard of farmers, increased employment vis-a-vis the investment involved as compared to large capacity complex/compound fertilisers plants and contribution towards the development of the region.

This is a typical example where the economy of scale may be sacrified with advantage in favour of an appropriate technology to suit local requirements.

TABLE II : **Indian Production and Imports of Fertilisers** *1975-76*

('000 *Tonnes*)

Material	Nutrient Per cent	Production	Imports
Ammonium Sulphate	20.6	611.1	102.8
Ammonium Sulphate Nitrate	26.0	21.3	10.3
Urea	46.0	2196.7	1469.1
Calcium Ammonium Nitrate	26.25	617.5	194.2
Ammonium Chloride	25.0	15.4	
Single Superphosphate	16.0	461.3	..
Triple Superphosphate	45.0	2.1	..
'Pelofos'	18.0	1.6	..
Muriate of Potash	60 0	..	367.1
Ammonium Phosphate Sulphate (16-20-0),(20-20-0), (18-9-0)	27 to 40	150.7	..
Ammonium Sulphate Phosphate (19 5-19 5-0)	39	20.1	.
Diammonium Phosphate (18-46-0)	64	52.9	449 2
Urea Ammonium Phosphate (28-28-0), (14-35-14)	56, 63	193.3	.
Nitrophosphate (15-15-15), (20-20-0)	45, 40	215.8	.
Ammonium Nitrate Phosphate (20-20-0), (26-14-0), (23-23-0)	40, 46	..	258.8
N-P-K Grades (1-1-1) (17-17-17), (17-17-16), (15-15-15), (19-19-19), (14-14-14)	42 to 57	297 4	280 9
NPK Grade (12-32-16)	60	72 3	
NPK Grade (22-22-11)	55	3 1	
Miscellaneous NPK	62, 46	2 0	1 6
NP Grade (24-24-0)	48	91.7	97 7

Incentives for Self-Employment

VIRENDRA AGARWALA

IF COMMUNISM has been accepted as the national creed by a substantial percentage of world's population, it is largely due to the fact that democratic countries have failed to create employment potential for absorbing the growing number of unemployeds. In India, poverty has been growing at an enormous pace because the economy has remained so stagnant. The labour market has been overflowing with job-seekers. Poverty and joblessness are almost synonymous terms. If poverty is to be eradicated then the Janata Government must evolve a definite employment strategy and rearrange its plan priorities so that employment opportunities are made available to all those who are now seeking jobs.

The Congress laid greater emphasis on accelerating the pace of growth but ignored the essential aspect of ensuring job opportunity to the growing population of job-seekers. Democracy guarantees fuller opportunities to all but such freedom has little meaning so long as the state fails to provide opportunities for fuller employment to all people in the country. Mere achievement of an increased average per capita income cannot by itself help in the achievement of the objectives unless there is a reasonable assurance of suitable employment to every citizen who has the capacity of being gainfully employed in a manner which will not only give remuneration but also social satisfaction in the use of his talents and capacities. To the extent a plan falls short of generating adequate employment opportunities, it will necessarily give rise to social unrest which, if allowed to grow, can wreck the other benefits that the plan may seek to provide.

It is widely recognised that the weakest part in Government's planning in India has been employment planning. Our earlier plans did not consider maximisation of employment opportunities as an important objective at all. It was only in the fourth plan that emphasis came to be laid on increasing employment opportunities and on the adoption of labour intensive tehniques to the extent possible. However, the employment generation has not kept pace with the growth of labour force. The unemployment among educated and technically qualified persons also continues to cause concern.

GROWING NUMBER OF UNEMPLOYEDS

The Fourth Plan started with a backlog of 16 million unemployeds. New entrants to the labour force during 1969-74 were estimated to be another 23 million. This means that a total of 39 million jobseekers were in the employment market during that period. The situation is still worse. We have already an estimated backlog of 21-22 million unemployeds to which nearly 6 million additional job-seekers are added every year. This means that the country will have 64 million unemployeds by the end of the sixth plan. Though public sector units did increase the employment potential from 104 lakh in 1970 to 128 lakh in 1975, there was complete stagnation in the corporate sector during the last 7 years. As against 3 lakh jobs in sixties it was unable to create more than 50,000 jobs in a year. No reliable data is available in respect of actual absorption either in agriculture or small industries. The organised sector either public or private could not create more than half a million jobs in a year. This indicates that the economy is required to create 50 million jobs by the end of the sixth plan.

The newly constituted Planning Commission has already begun to prepare the base for the sixth plan with greater emphasis on rural development and increased employment. Four major areas of activity have been indentified for realising this main objective. They are: massive irrigation programme, block area planning for employment, programme of minimum needs and public distribution system and evolving such labour intensive techniques in production of mass consumption goods which will create large employment potential. It is true that irrigated area has increased considerably in the last two decades but we have still to go a long way to cover the entire cropped area in the country. At present only 2 million hectares of land are added to irrigated area every year. This needs to be doubled during the sixth plan period. Rural works programme if undertaken on a methodical line can certainly absorb 15 to 20 million unemployed on a regular basis. If industrial growth is accelerated at a rate of 15 per cent a year, it can go a long way towards creating large number of jobs in the organised sector. Cottage and small scale industries, can also provide self-employment to large number of unemployeds and underemployeds in the rural areas. Establishment of schools, hospitals, house sites and rural electrification can also promote new economic activity. The sixth plan is likely to spell out this strategy both in quantitative and qualitative terms.

It is true that no government can ever provide jobs to such a large population of unemployeds. Adequate incentives need to be given to job-seekers to create employment for themselves. As the Janata Government is committed to provide full employment within ten years it should immediately evolve a package programme of incentives which should be made available to such unemployeds who are prepared to create work for themselves. Public sector banks have been extending credit assistance in the implementation of various employment promotion programmes and schemes evolved by the Central and State Governments. They have already sanctioned Rs. 80.5 crore as credit assistance on 68,989 applications under the half-a-million jobs employment promotion programmes. This is just a drop in the ocean. A comprehensive plan of bank credit, technical know-how and raw material on district level need to be so worked out that those living below the poverty line in rural areas are immediately attracted to engage themselves in gainful employment. A well-knit marketing system for indigenously produced goods is an essential requirement for the success of these self-help schemes. □

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Burden of Centre's Loans on States

L. G. Bapat

DURING THE Chief Ministers' conference held in New)elhi in August 1977, the states 'omplained of the growing burden of central loans on their finances.

A break-up of states' public debt hows that their loans from the 'entre are increasing very fast. These loans were just Rs. 155 crore n 1951. They had gone up to ts. 9,149 crore by 1975, the latest ear for which final figures are available at present. This gives an nnual average rate of growth of 98 per cent. In absolute terms, hese loans have increased by ts. 788 crore during the first plan, ts. 1,071 crore during the second lan, Rs. 2,096 crore during the hird plan and by Rs. 2,995 crore uring the fourth plan. Thus, tates' dependence on centre's loans eems to have grown at a fast rate vith the completion of each plan.

Further, the absolute size of entre's loans was quite large at ts. 9,149 crore in 1975. Since hen, if anything, it has grown still urther. Its proportion to the total ublic debt of the states was also uite high at 75 per cent in 1974-'5. It was, therefore, to be xpected that at some time or the ther, the repayment and servicing f these loans would pose problems o the states.

Out of their total revenue (or expenditure on revenue account), the tates utilised just 1.9 per cent in 950-51 for payment of interest on heir total public debt. Slowly, this roportion began to rise and reahed an all-time high at over 14 er cent by the end of the third lan. Though it has tended to deline thereafter, the proportion in 974-75 was around 5.4 per cent.

Repayment Problems

In addition to the interest burden, he states have to provide for repayment of loans themselves and incur urther expenses towards debt servicing. The total burden on account f these three items reveals a grim icture. In 1974-75, the centre anctioned loans of Rs. 1,075.2 rore to the states. Out of that mount, the states used Rs. 942.9 rore for payment of interest, repayment of old matured loans, and or debt servicing. They were then left with only Rs. 132.3 crore or just about 12.4 per cent of gross loans sanctioned. When the budget estimates for 1975-76 were prepared, the states found that the gross loans expected to be sanctioned by the centre (Rs. 1,143 crore) were likely to fall short by Rs. 31.5 crore in view of the expected burden of centre's loans on their finances during that year (Rs. 1,174.5 crore).

The states were dragged out of their precarious position by the centre by granting about Rs. 180 crore more loans. Hence, though the states had to use about Rs. 120 crore more towards the above three items of debt burden, they could convert the deficit of Rs. 31.5 crore into a surplus of Rs. 32.1 crore by a small economy of Rs. 13 crore in their expenses on the administration of those debts. Though, according to the budget estimates for 1976-77, the states were expected to retain a small amount of Rs. 143.6 crore out of the expected new loans of Rs. 1,282 crore to be sanctioned by the centre, it is difficult to say what the final picture would be. Generally, at least in respect of their debt burden, it is found that the picture presented at the time of submitting budget proposals is wide of the mark. The final picture that is obtained after two years is found to be quite different. Looked at from any angle, the conclusion is clear: the burden of centre's loans on the states' finances is quite heavy and is growing from year to year. What is the remedy?

Solution That May Not Work

A number of suggestions may be offered. The states may be allowed a postponement of loan repayment. But this would only delay the day of reckoning, when the problem would become worse. The states would have to find out funds for repayment of loans maturing in that particular year along with postponed loans. Moreover, the finances of the centre are also tight. If repayment of loans is delayed by the states, the central deficit would be large. In that case, the states would simply be transferring their problem to the centre.

Should the old loans be written off? This also does not appear to be a satisfactory solution. As long as the tendency of the states to rely heavily on the centre continues, the difficulties will raise their head at some future date. Worse still, the knowledge that the centre can be depended upon to cancel old loans would destroy discipline in states' finances.

Is it possible to convert those loans into soft loans? It would certainly reduce the burden of interest payment. All the same, the problem of repayment of loans would remain. Further the centre obtains loans at a high rate of interest from the market. How can then the centre pass on those loans to the states at a lower rate of interest? The difference between these two rates of interest would have to be made good by the centre. It would widen the deficit in the centre's budgets. Further, higher rate of interest indicates the need to economise the use of capital. If the states find that they can get funds at a lower rate of interest, they would not feel the necessity of economising funds with sufficient intensity.

Should we amend our constitution and ask the states to obtain loans directly from the market and stop the present system of centre giving loans to them? Something can be said in favour of this suggestion. Then the States would be required to provide for the repayment of debt and payment of interest on due dates. It would bring more discipline in their fiscal matters. Further, they would be more watchful about the productive use of those loans. If this happens, they would have sufficient funds for arranging the repayment of loans. But this may create problems in other directions.

Under Article 293 of the constitution, the states are required to obtain the approval of the centre before raising loans from the market. In reality, the Reserve Bank exercises this power. It consults each state and finds out the total amount of loans to be raised. Then it finds out the availability of funds with financial institutions like the commercial banks, insurance companies, Unit Trust. If the availability of funds is equal to or more than the requirements of the states, well and good. But generally this does not happen. The available funds are normally less than the requirements. Hence, the share of each state is reduced. Many times, each state gets much less than its demand for loans.

Tapping the Farm Sector

In these circumstances, if the states are free to obtain loans from the money market directly, they would attempt to raise substantially larger

amounts than what they do at present. It would then be difficult to make the issue of loans a success. The states would then be tempted to offer higher and higher rates of interest. This may not be to the liking of the centre and the Reserve Bank. It would raise a much wider issue of the proper interest rate policy to our economy. It would be impossible to frame a uniform interest rate policy for the whole economy and implement it if the states bagan to compete among themselves in offering higher and higher rates of interest.

The proper solution is for the states to reduce their dependence on the centre. They would do well to raise more revenue from the sources left at their disposal by the special provisions in the constitution. Specifically speaking, the states could raise more revenue from the agricultural sector. In India, agricultural and non-agricultural incomes are almost equal at present. But income-tax collected by the centre from the non-agricultural income (Rs. 874 crore in 1974-75) was five times larger than the direct taxes (land revenue and agricultural income-tax collected from agricultural income by the states (Rs. 174.4 crore).

Rural House for Rs. 3450

A reasonably good house at a cost of Rs. 3,450 in a rural area—this is what the National Buildings Organisation has built—18 of them in Jagana village in the Banaskantha district of Gujarat.

Each house which is semi-detached has a plotted area of 84.5 sq. mtrs. The plinth area per unit is about 28.5 sq. mtrs. The house has a multi-purpose room of 3.52 mtrs. x 3 mtrs., kitchen, verandah, chokadi and a latrine. It has also been provided with one smokeless chulha. The total cost of the house excluding latrine comes to Rs. 3,200.

Another important feature of this project is that locally available materials have been used like burnt bricks for walls, AC sheets over local wood purlins for roofing, cowdung leaping for flooring, local wood for doors and windows and cement for finishing.

Similar projects are being undertaken by the rural wings of the NBO located in Srinagar, Jodhpur, Bangalore, Calcutta and Delhi. The idea is to make people aware that a reasonably good house can be had for Rs. 3,500.

WINDOWS ON FARM DEVELOPMENT

Shows and Competitions

CROP COMPETITIONS for giving awards to the country's top farmers are being held a regular feature since 1959-60. So far crop competitions have been held only for wheat and rice. Plans are afoot to organise similar competitions for selecting Krishi Pandits in oilseeds, pulses and cotton and some other important crops.

The competitions are first held at state, district and block levels by the state Governments and at the All India Level by the Ministry of Agriculture. The chief reason for holding these competitions is to encourage the farmers to adopt the recommended practices, and to promote a spirit of healthy competition amongst farmers. Another reason for holding these contests is to focus people's attention on how the new technology can be geared to meet the challenge of higher foodgrain production. The winners at the lower levels are eligible to compete at the next higher level during the following year.

The first six winners in a particular year at the state level competitions are eligible to enter the All India Crop Competition. Three cash prizes of the value of Rs. 3,000, Rs. 1,200 and Rs. 800 are given for each crop to the winners obtaining first, second and third positions respectively. The first prize winner in each crop is also awarded a certificate of Krishi Pandit.

Other Awards

Awards are also given for the best orchards of mango, sweet oranges, grapes, apple, pineapple and guava and also for banana plantations on the basis of All India Competitions. The orchards for competitions should have a minimum area of 0.2 hectare.

The first prize winner is awarded a certificate of Udyan Pandit, a bronze medal and Rs. 5,000. The second prize winner gets a certificate of merit and Rs. 2,000. The orchards are judged on the basis of score cards taking into consideration the various points that contribute to total production, quality of the produce and management. And not just the yield alone.

As milk and milk products play an important part in the country's dietary standard All India Milk Yield Competitions are also organised. The animals are judged according to milk yield obtained in 24 hours. Naturally, different categories of cattle are judged separately.

The most coveted award 'Gopal Ratna' is given to an individual or institution making special contribution towards development of highly productive breeds.

The competition encourages the farmers to keep systematic records of milk yield from lactation to lactation and generation to generation. This in turn helps them to evaluate the response to improvement through better husbandry practices. It also helps the scientists locate the best animals for taking up further development programmes in the country.

If the competitions enthuse farmers to take to scientific lines of production, the shows, go a step further.

'Shows' Show

Shows open up both the agricultural and non-agricultural comunities to the new world of achievements in agriculture and allied areas The Livesotck and Poultry Shows; Fruit and Vegetable Shows serve as a window on the latest development in the respective fields. Farm Information Unit organises these shows, both at regional and all India levels with a clear-cut goal of educating one and all. The visitors watch with pride and hope the fine specimen of livestock and poultry When they witness the best fruits and vegetables, they know what to expect from the farm produce they raise or buy. They also learn about the origin of the different fruits and vegetables

Previously such shows were confined to the countryside only. Now they are organised at important consumer centres as well. The shows also provide opportunities to different people to come together and compare notes on various aspects of research developments. □

Rural Industrialisation for Economic Progress

S. Subramaniam

INSPITE of Mahatma Gandhi and the Khadi and llage Industries Commission, rural lustrialisation has not yet taken the ground. Broad-based ecomic progress in the country is ssible only through an early in-gration of industry with the rural onomy. Decentralisation of instry is necessary for bringing derdeveloped regions and agriculre into the mainstream of develop-ent and for providing the large ral population job opportunities.

The controversy in the past about hether industry should have prioy or whether both industry and riculture should be developed multaneously and in a balanced anner, resulted in considering dustry and agriculture as separate d isolated economic sectors. For lid economic foundations each ctor should reinforce and strengen the other. Multiple economic oss-linkage is very necesry. The only way to transform substence agriculture is to integrate it ith the rest of the economy, rough the provision of tools for odernisation which would give a rward linkage. A growing market r the products of agriculture ould be stimulated to give a backard linkage to industry through the tting up of processing projects d marketing facilities. This, in rn, would stimulate new and growg demand for agricultural products. The demand for processed ods can be expanded, agricultural astes and by-products can be rocessed to augment the feed pply for livestock and the demand r industrial crops, including oil nd fibre crops can be stepped up his will enable the farmers to reak away from subsistence farmg where each family literally prouces only its own food needs, and oves towards diversification of prouction of crops and livestock products. The introduction of canning lants to process fruits that would e otherwise wasted provides a maret for these products in the offeason, raises the price to the farmer uring the harvesting season and nables him to sell to a much larger arket. This also leads to the evelopment of packaging and conainer industries.

Another point of contact and inegration of agriculture with industry in the provision of rural industrial employment and a source of additional income to the surplus rural population. To achieve this objective, we must first use labour more effectively in agriculture, both intensively and extensively; next we must draw off labour to industry and other non-agricultural sectors. The extent to which labour can be absorbed from agriculture into industry will determine the extent to which productivity can be raised in the economy as a whole. There is also considerable scope for providing seasonal industrial employment between peak farm seasons.

Labour intensification in agriculture can be obtained by extending irrigation, by crop and livestock diversification and by the use of improved equipment, breeding stock and production materials, so as to reduce the pressure for additional industrial jobs in the early stages of development.

Urban Concentration

Historically, people drawn off from agriculture and rural areas have been attracted to the large cities This has resulted in general urban congestion, the growth of slum conditions, and a strain on public utilities Gunnar Mydral has pointed out that the growth of industrial centres feeds on itself. a phenomenon which has been observed throughout industrial history. It may be anticipated that increasing urban concentration will cause additional social. political and economic strains by the end of the century unless some positive policies are initiated to improve conditions or to slow down and reverse the process Small town industrialisation policies must replace urban industrialisation

Substantial social overhead costs are attributable to urban industrialisation and concentration. These costs are of special importance for us and comprise social costs associated with the dislocation of people from rural employment and their absorption in new employment, with provision of living amenities. pollution and provision of transportation, power, water and other services.

Among the economic overhead costs are the provision, much below the economic cost of housing, water and sanitation. hospitals, schools, streets and lighting, policing and fire protection, marketing facilities and other amenities usually associated with urban life.

Decentralisation of industry may also imply certain costs which may be borne by government. These, however, must be viewed as external economies to industry. Of special importance amongst these are industrial research, extension, credit services, industrial estates and common industrial facilities.

Industrial Decentralisation

The Karve committee on rural industrialisation, said "The pattern of industrial activity that should gradually emerge is that of a group of villages having its natural industrial and urban centre. These small urban centres will be similarly related to bigger ones. Thus a pyramid of industry broad-based on a progressive rural economy will be built up. In such an organisation small centres can experience a cooperative interest in the bigger ones, and these latter would develop a genuinely supporting instead of exploitational relationship towards the smaller towns and the country side".

As a contrast, the United Kingdom has shown the feasibility of a positive industrial location policy as a most effective method of controlling the distribution of the population This has been a core principle in the regional planning of the United Kingdom, that is encouraging industry to move to the depressed development areas afflicted by chronic unemployment. The Puerto Rico economic development administration is pursuing a decentralisation pattern along very specific lines. with differential factory rentals to attract industry to the more distant and less favourable locations.

We too can follow a step-wise penetration of interior regions by establishing flourishing industrial nuclei away from the large urban centres. Eventually it may be feasible to extend industry down to the small towns and large villages. If properly utilised, industrial estates are an efficient device because consultancy services. supervised credit and common facility services can be built into them to provide some of the economies of scale to small industry.

The industries to be chosen for rural development can include agricultural implements, including processing equipment, industries to pro-

cess foods, feeds, and agricultural raw materials used in industry, mechanical repair facilities, capital goods for manufacturing implements and processing machinery and essential consumer goods industries.

The major problem in decentralising industry may be to find the entrepreneurship required to develop the industrial nuclei. The urban cultural milieu in general and industry in particular produces technical people and individuals controlling blocks of capital which are spawned by the existing industry. Moreover, many of the industrial opportunities are based on serving the existing enterprises. The real problem thus is how entrepreneurship can be attracted to the new industrial centres.

As there are certain economic limits to which decentralisation can be carried out in practice, it may not be wise to set up industries in the villages unless suitable entrepreneurial talent is available and the enterprises can be made viable. It may be feasible to stimulate industry in small cities and towns without incurring excessive expenditure. Since investment and working capital are major bottlenecks in such ventures the development banks and nationalised banking system will have to operate in the interior regions.

Finally, there might be another approach to the problem of rural industrialisation, namely, by making the village as the nucleus for providing entrepreneurship, supervisory personnel and investment capital. The Israeli kibbutz farm—which works as an economic unit on a collective cooperative basis in the village—has provided managerial and supervisory personnel from its membership. In the course of time, manufacturing activities have grown up in many of these economic units, due to previous industrial training or interest of some members to perform essential repairing or manufacturing services. In other cases, the kibbutz saw opportunities in agricultural processing for more effectively disposing of farm products. A collective farm of this type is an effective device for accumulating capital, and in the course of time it must necessarily expand to provide for the growth of the community by setting up new farm colonies or by investing in industrial enterprises. As the members are not paid wages and all their meagre needs are supplied by the community wealth must necessarily accumulate. The organisation of the Chinese villages into communes is also along these lines. □

Solar Energy for Central Water Heating Systems

ISRAEL IS a world leader in the utilisation of solar energy. Some 250,000 families heat their water supply, either partially or fully, by means of solar energy collectors.

Still over 12 per cent of the nation's energy supply is used to heat water for domestic purposes at an annual cost of about ILI b. .

The national as well as household energy bills can be greatly reduced by utilising, on a mass scale, central solar water heating systems in apartment buildings. This was the finding of a team of scientists at Ben Gurion University of the Negat, following a two-year research and development project using such systems.

Working with a prototype servicing at university dormitory, professors David Wolf and Avraham Tamir, and Dr. Avraham Kudish found that a central apparatus is both technically and economically more desirable than individual solar units now in the market.

Thirty such systems are now in operation in Israel, including one in Eilat at the 100-room Neptune Hotel. About one-half of these units are produced by the Miromit Company. A spokesman for Miromit recently appealed to the Government to encourage the installation of the central solar units by eliminating the purchase tax on such systems.

Less Costly

Now commercially available, the central system can save consumers 40 per cent of the purchase cost of a comparable number of individual units. In addition to increased efficiency of heat transfer and the lower price tag, the central system offers an aesthetic advantage over individual units, which clutter rooftops with unsightly storage tanks and irregularly placed plate collectors. No storage tanks protrude from the rooftop in the pump-activated central system. Instead, one large tank is placed unobtrusively alongside the building in a wind-protected area to reduce heat loss.

The prototype installed at the student dormitory in Beersheba uses 20 standard collectors, integrated into one system, to supply hot water to 24 apartments. The system is operated by two small pumps, located next to the water tank. One pump circulates water between the tank and the collector, and the other between the tank and the housing units. The system is activated by differential thermostats between the collector and the storage tank.

The solar unit still requires an electric or fuel-fired back-up system for the few winter months when only 20 to 30 per cent of the energy needed for heating can be supplied by the sun. But for the rest of the year, solar energy can provide 80 to 100 per cent of the hot water needed.

One reason for the comparatively low cost of the central system is that it works on the 'banking" principle, that is, all the tenants will not want to draw hot water at the same time. Thus, 38 square metres of collector surface are sufficient for 24 apartments instead of the 72 square metres.

"Although collector space is reduced by 40 per cent, heat efficiency is improved", claims Prof. Wolf, director of the research project. Using the central apparatus, we have been able to lower thermostats on the back-up heaters from 70C to 40C.

If applied on a large scale, the central system will considerably reduce the energy used by the 800,000 electric hot water tanks in use now

According to Prof. Wolf, the system is applicable to most multistorey buildings and is relatively inexpensive to adapt to buildings using conventional central water-heating systems. In the latter instance, solar collectors need only be added to the already existing central storage tank and circulation system

The team of researchers is also working on the development of low-cost collectors to replace conventional ones made of galvanized metal, which cost from IL 3,000 to IL 4,500 per unit. They are currently testing prototype collectors made more cheaply from plastic materials. □

The Sun consists of 2-2 octillion *tons of gaseous matter, mostly hydrogen and helium, with a surface temperature of* ***10,000 F.***

Yojana Quiz

1. Where one can see the Shahyad Monument ?

2. What is Gouffre Berger ?

3. Earth revolves round the axis once in 24 hours. How much time the Sun takes to revolve once round its axis ?

4. What is Aurora Australis ?

5. The Atomic Age is said to have started with the explosion of a test bomb. When and where the explosion took place ?

6. Which are the places connected by National Highway No. 1 ?

Answers

1. The Shahyad Monument is in Tehran, built to commemorate the 2500th anniversary of the Iranian Empire. It is 45 m high, the height of the large arch is 21 m, the base is 63 m wide. It was designed by Hossein Amanat, a talented young Iranian architect.

2. Gouffre Berger (France) is the deepest cave in the world. It is 3,723 ft deep.

3. 25 days 9 hours.

4. Aurora Australis is a broad display of rather faint light in the southern skies. The light which appears on the northern skies near north pole region is called Aurora Borealis.

5. The explosion of the test bomb was on July 16, 1945, near Alamogordo, N M USA at 5 30 a m local time.

6. National Highway No 1 has connected Delhi, Ambala, Jullundur and Amritsar and then has proceeded to the border between India and Pakistan

Quotation Box

A century ago Britain's system of government was the envy of two thirds of the world, and the overload of much of the other one third. Today the mother of parliaments is kitchen maid to two alternating party political tyrannies, neither of which is ever elected by, or represents, majority of the British people

—The Economist

* *

I was under the impression that there was no slavery in India even under the Emergency.

—Mr Justice J. C. Shah

* *

My job is to stop Britain going red.

—Mrs Margaret Thatcher

* *

I only thought Indira was India; never knew Indira was international.

—D. K. Borooah

* *

Capitalists are displacing gods in India. The Lakshmi Narayan temple in Delhi is known as Birla temple.

—Mohan Dharia

* *

It is not fair to make prohibition a fad.

—Jayaprakash Narayan

* *

The Shah Commission should look into the malaria problem.

—Raj Narain

* *

The daily newspaper is a terrible exposure of the shallowness of the profession as practised in India.

—Romesh Thapar in *Economic and Political Weekly*

* *

Whereas it appears to us at the moment that the Soviet Union wants to kill us off by force, the United States want to strangle us with finesse

—John Vorster, Prime Minister of South Africa.

* *

BOOKS

Understanding Labour Economics

Readings in Indian Labour and Social Welfare *by Dr. J. N. Mongia; M/s. Atma Ram & Sons, Delhi,* 1976 ; *Pages* XIX + 804 ; *Price Rs.* 100.

THIS veritable compendium produced by an enterprising official economist specialised in the field serves the timely purpose of focussing the various aspects of the subject with 24 well-chosen papers and five appendices. The profile of Indian labour written by the author himself serves as a useful introduction to what follows on industrial labour, recruitment, workers' education and training, working conditions, wages and earnings, machinery for wage fixation, wage policy, trade unionism, industrial relations and workers' participation in management, all burning issues that retain public attention today.

The somewhat detached viewpoints based on the specialised approaches emanating as offshoots of planning in India are dealt with in the chapters on labour in public sector undertaking, labour welfare and social security measures, definitional and measurement criteria of unemployment and manpower planning Omnibus treatment of labour legislation and administration and productivity, two papers on labour productivity and statistics followed by one on labour research lead us on to the role of the ILO in India Two studies on agricultural labour and women workers in India have been given towards the end. Together with five appendices on technical aspects of labour economics this publication is rendered rather comprehensive in its coverage and lucid in the presentation of facts relating to policies and programmes

The substantial papers included in these readings have been carefully chosen both from experienced official and academic researchers. The temptation of the more specialist writers involved in studies on isolated problems has been too often to skip over the basic issues and swing on to different schools of thought that are not infrequently tinged with ideological coatings However, in regard to this book the papers chosen are singularly free from this tendency All the same these readings might call for some updating of facts and figures in its second edition. The book carries a detailed subject index and useful bibliography towards the end of some papers

Overall, this book should be very handy for the use of labour administrators, college students and the general public with each one inexorably left to feel the pinch of the heavy price which might well have been subsidised to suit the pocket of a larger lay readership.

—**B. N. Nair**

A Comparative Study

Modernising Indian Peasants *by Surinder Jetley, published by Asian Educational Services, New Delhi-110016; Pages* 182; *Price Rs.* 48.

SURINDER Jetley draws a vivid picture of life in two Indian villages in this book. From the research made on this life, she gives a resume of the modernisation and ignorance of the peasants Both her case studies are very enlightening.

When she talks of Tiari and Dehia in her book, one is simply carried away with the lucid description of the people she meets. In fact the greatest contribution of this book is the description of two opposite villages and the characterisation of the castes involved. The examples set by the Kurmis of Tiari and the Brahmins of Mirdadpur are two geometrically opposite propositions. How much one community can achieve with cooperation and dignity of labour is well depicted in the case of village Tiari and how badly can one community come out with all the resources in hand but having no respect for dignity of labour is equally well described in the case of village Mirdadpur. Surinder jetley, however, does not finish her description here She goes a step further to say that our village communities suffer from a sense of hopelessness in the face of ignorance Truly, the best of facilities given by the community development departments have not yielded the desired fruit due to the village community's state of utter hopelessness coupled with ignorance and jealousy. Those who shed the traditions and worked in cooperation have prospered (Thakurs of Chak and Kurmis of Tiari, pages 52 and 62 respectively are examples). And worse off are those who having every available resource at their command, have yet met the same fate as the Brahmins of Mirdadpur. (page 70 in the book)

Through a painstaking research study of the life in villages, the author has brought out in her thesis cretain revealing facts quite unknown to many scholars. For instance she has highlighted the strong incentives provided to the Japanese peasants to improve their skill and technology for producing more, from the detailed comparisons of the characteristics of peasants made in the books of Kusum Nair. According to her the British system of collecting land revenues with the help of intermediaries was chiefly responsible for creating neo-landlordism in India.

The book is a great research piece on a comparatively dull subject but the author deserves kudos for the smooth and easy approach to the subject. There are a few factual errors, perhaps misprints, like the 200 years of British rule in India The years of British rule are far less than that

-**Kumar**

Labour Laws

Workers' Welfare and Law *by Pawan Choudhary Metropolitan Book Co. Pvt. Ltd., New Delhi; Pages* 144 ; *Price Rs.* 40.

SINCE long, both for the general reader as wel[l] as for the student of labour laws, there has bee[n] a genuine need for a study at one place all the law[s] concerning labour and labour welfare. This is a modes[t] compilation of the author's few selected articles o[n] different aspects of labour laws, already published i[n] different papers and periodicals during the last seve[n] years. The author has done a competent piece [of] work.

The book has been divided into three part[s] Part one contains a number of articles on th[e] aspects of industrial disputes covered under the Indu[s]trial Disputes Act. Part two contains a mode

attempt to highlight some of the legislative pieces tailored by the government in recent times and the problems which have been either anticipated or actually experienced during the working of the workers' welfare legislations. Part three brings out the complementary role of labour and production The publication will serve as a compact and handy companion for those connected with workers' and their welfare.

—N. C.

Applied Economics

Readings in Applied Economics *by Navin Chandra Joshi, Vivek Publishing Company, Delhi,* 1977; *Pages* 272; *Price Rs.* 48

THIS book, written just before the recent Lok Sabha elections, attempts to discuss economic development in general and the developments in our country in some fields as agriculture, industry, infrastructure and trade. The general aspects of development cover though briefly, regional planning, manpower planning and project evaluation. There is emphasis on non-GNP approach to development and also on steady, even if, lower rate of growth rather than on high but fluctuating rates of growth.

Agricultural, industrial, monetary and trade policies have been dealt with in the relevant chapters and India's progress in these fields has been highlighted. The treatment of performance of public sector covers the relative performance of public/private sectors, the basic causes and constraints for the apparent la[g] the performance of the former. Stress has rig[htly] been laid on the need for improvement in the man[age]ment efficiency, higher utilisation of capacities in public sector units, improvement of efficiency reduction in costs of operation and the need realistic pricing policies for them.

The book has a useful bibliography at the [end]. It also contains appendices which cover ne[arly a] quarter of the book and treat matters such as and pattern of growth, financial resources and out[lay] in the fifth plan and the 20-point new economic [pro]gramme of emergency vintage which appear to [have] been reproduced from other publications. Tho[ugh] informative, the book is, somewhat highly priced is extensively repetitive at certain places.

—G

CIVIL SERVANTS VERSUS POLITICIAN[S]

(*Contd. from page* 9)

the government. Such an understanding is essential smooth relations and swift transaction of public b[usi]ness

Ultimately, it is to public service, honesty and et[hics] that every public servant—politician or bureaucra[t] should be committed It is, as I said, a question bonafides. If the politician and the bureaucrat un[der]stand their roles and perform them honestly fearlessly—neither of them wanting to stick to o[ffice] at any price—there can be no scope for any con[flict] of jurisdiction

Many Use of Neem

THE NEEM tree, a native of India and ever-green, is known for its varied scientific properties. Besides the use made of neem sticks as tooth brush nd of neem leaves in the foodgrain containers to save stored grain from pests, the use of neem oil in oap-making and of neem cake is extensive.

It is estimated that in India there are 1.38 crore neem trees. These produce about 4.18 lakh tonnes of neem seed every year and it can yield 83 lakh onnes of oil worth Rs. 33 crore to Rs. 50 crore and 3.30 lakh tonnes of neem cake worth Rs. 14 crore, to Rs. 20 crore, provided the entire seed crop is collected. However, the present seed collection is very different. It is no more than a meagre one lakh onnes

The Directorate of Non-edible Oils and Soap Industry of the Khadi and Village Industries Commission had been carrying out research in Pune on neem cake and neem oil since 1969.

Application of neem cake-blended urea in paddy crop not only increases the yield of paddy but also adds to the protein content of rice The findings at Padegaon sugarcane research station in Maharashtra have given promising results. The station has said that if neem cake is used, the nitrogen need per hectare for *adsali* cane (of 18 month duration) can be brought down from 400 to 300 kg., making a saving of Rs 338 Apart from saving on fertiliser, there will be increase in the yield of sugarcane by 2.2 tonnes er hectage, further addition to the sugar content and rise in profit by Rs 330 per hectare Use of 22 kg of neem cake for paddy crop and 140 kg. of neem cake for sugarcane crop per hectare is recommended Neem cake blending prevents nitrogen losses om urea The slow release of nitrogen results from certain property which exists in the bitter part of em cake Similarly, the activity of certain types of cteria in soil is also controlled by the neem cake and e slow release of nitrogen helps the growing crop ie reseach findings on crops like paddy and sugarcane ave shown that urea nitrogen could be saved to the tent of 25 to 50 per cent with the application of em cake-blended urea

If the potential neem cake of 3.30 lakh tonnes is ed, 1.48 crore hectares of paddy or 23 lakh hectares of sugarcane will benefit. In India, urea worth . 1,777 crore is used for paddy crop and Rs. 108 ore for sugarcane. Urea worth Rs. 110 crore and . 54 crore respectively is lost due to leaching or nitrification The nitrification inhibition property of ligenous source like neem cake can prevent this avy loss

The employment potential of the neem seed collection is to the extent of four lakh persons for 60 n days with wages going up to Rs. eight crore. The em seed collection work is a productive job which n provide large scale employment to the landless bourers at least for 2 to 3 months in a year. School ildren during their free time or vacation can collect em seeds that drop from trees The seed after shing the outer pulp would fetch them pocket ney or enable them to earn enough to meet their hool expenses.

The neem can be planted in waste lands. One hectare of land with a hundred neem trees can yield after years of plantation about 5 tonnes of seeds every ar.

About 18,000 tonnes of neem oil are said to have been used in soap making in 1975. Neem oil is used in some medicinal preparations and also, effectively as pesticide. Neem oil if applied to seeds or grains can protect them from stored grain pests, 800 grams of neem oil being applied to 100 kgs. of seed or grain.

Neem kernel meal, after some processing, yields high grade protein suitable for use as a constituent in poultry feed as a substitute for groundnut meal.

On Canine Lovers

MRS. S. B. SARIN

I HAVE read innumerable articles and stories describing the cruelty of cold humans towards the wonderful species of DOGS. I suppose no harm will be done if something is said and written about the other side of these mute darlings.

The other day my husband and I went to visit some friends. When we reached the door to their drawing room we rang the door bell. When the lady of the house came out she looked aghast. Both her husband and she could not get over the fact how their darling doggy (I mean bitch) had let us come through the main entrance. "She (the doggy) normally guards the house so well". However the doggy did not spare us when we took our leave She pounced on my ankels. Did I shriek ! "Oh ! Don't worry, this is her usual practice," said the couple most nonchalantly.

Then we have some friends in Maharani Bagh who have an alsatian who has built up quite a record for biting a good number of humans. The gentleman who lives in the upper storey of the same house (a strudy six-footer) is scared of this dog that every time he wants to step out of the house he shouts for his servant to come out with a stick.

Despite repeated complaints by him and other neighbours, the owner refuses to chain the dog. Her standard argument is "How would you like it if suddenly chains were put on you. After reading the hair-raising tales of the experiences of the MISA detenues during the Emergency, do you still want me to chain my dog, and curb his freedom ?"

The crowning glory to the above two cases is the story of my best friend's dog The lady (I mean my friend) is really fond of her husband as also of her three children However, she has a special affection for her dog. The little monster it seems has bitten all her family members at one time or another, excepting her. This fact makes her love him all the more as it is an added proof of the fellow's devotion to her.

However, what really gets my goat is dogs being described as poor mute, tongueless (Bezubaan) animals Whatever is meant by this ? Has no one ever heard the ear-splitting noises that they make, in different tones especially in the quiet of the night. And regarding the extra-intelligence bit I would like to give an example. Once a dog was forced on me by some friends. The brute bit my little son without any provocation. The blame was put on my son by my friends who thought the child must have teased the dog ! The experience was enough for me to return him to his original owners.

Personally I feel sorry for the people who feed these brutes with love and food in the hope that need be they will be protected from theft or burglary And at the time of test, the dog is lured away by piece of flesh, a bitch or any other diversion provided by the enticers.

JANATA GOVERNMENT IN HARYANA

ACHIEVEMENTS

* Civil liberties restored; a new atmosphere of freedom brought about among the masses.

* Unprecedented flood combated; relief work carried out despite the economic constraints.

* More attention on irrigation and power; more than 70 per cent of the plan outlay allotted for augmenting irrigation and power facilities; a scheme underway to instal 400 augmentation tubewells and 200 direct irrigation tubewells.

* Sprinkler irrigation being introduced and a scheme drafted out to brickline 1100 Kms. long water channel.

* Subsidy on fertilizers being given to farmers; distribution of crop loan amounting to Rs. 80 80 crores; extension of intensive cotton cultivation in 350 villages costing Rs. 12 8 crores;

* A double-target scheme to provide employment to the rural youth and create an infrastructure of small scale industries; financial help, technical know-how and marketing facilities being provided in order to flourish cottage industry.

* "Jana Swasthya Rakshak Scheme" formulated covering a total population of about 10 lakhs with a total expenditure of Rs. 5.70 lakhs during the current financial year.

* Ambitious programmes making headway for the welfare of labour classes and weaker sections; schemes being implemented to provide sufficient drinking water to the villages and extend education facilities to women.

* Prohibition introduced on selective basis in a number of villages.

Issued by : Director Public Relations, Haryana.

Development Notes

Electrolytic Manganese Dioxide Plant Goes on Stream

A 1000 tonne per ann-
ı capacity Electrolytic
ınganese Dioxide Plant
sed on technology de-
'oped by the National
etallurgical Laboratory,
mshedpur has gone into
oduction in Trivandrum.

The plant costing Rs.
ı crore uses medium
ıde manganese ore and
ste ferrous sulphate-
ıphuric acid solution. By utilising this waste liquor, the pollution and disposal problems of this waste have been reduced besides reducing the cost of the project.

Manganese Dioxide is used for the manufacture of dry cells as a "Depolariser". The Govt. of Burma has also evinced interest in the NML technology and has asked for its know-how.

Industrial Units in Gujarat

A total of 4,728 small industries were set-up in Gujarat during last year. The four districts of Ahmedabad, Surat, Rajkot
d Baroda accounted for
many as 2885 of them
according to an official
ort. Ahmedabad the
mer state capital was on top with 1228 industries followed by Surat and Rajkot with 662 each and Baroda 333.

The number of small units in Gujarat had increased from 25,562 at the end of 1974 to 30,290 by the end of last year.

Rail Coaches to be Fully Indigenous

roduction of coaches
the Integral Coach
ctory (ICF) in Madras
become cent per cent
genous by next year.
eady 97 per cent of
duction at the ICF
ndigenous. Only the
en steel—a low alloy
tensile and cor-
on resistant steel is
g imported at pre-
The Rourkela
l Plant is now ex-
ed to produce this steel for the ICF. When it is done, the import content of the coaches will be practically eliminated. During the last decade, ICF had exported coaches worth over Rs. 10 crore. This year export orders worth Rs. 9 crore were bagged by the ICF : 32 brake vans for Nigeria and 30 coaches for the Philippines National Railway.

Increase In Power Generation

here has been an
ase of over 6 per
in thermal power
ration, including nu-
in the country during the period from April to September this year compared to the corresponding period last year. The total power generation inclusive of thermal, nuclear and hydro, has gone up by about 2 per cent during this period over that of the corresponding period last year. The total power generation in September this year was 7,550 million units as against 7,066 million units during the same period last year thus showing an increase of over 6.8 per cent.

Two new thermal units of 180 mw were commissioned during September, thus bringing the total thermal installed capacity to 12,190 mw. Of the two units one of 129 mw was commissioned at Amarkantak (Madhya Pradesh) and the other of 60 mw at Harduaganj (Uttar Pradesh).

Another Oil Strike off Bombay

The Oil and Natural Gas Commission has struck another major new offshore oil source located about 70 kilometres to the south west of Bombay and nearly 65 km south of the Bassein gas field near the Bombay High Oilfields. The oil well drilling began in September. Now, 1,475 barrels of crude oil (about 200 tonnes) along with the 250,000 cubic metres of gas are being produced every day.

The ONGC would have to drill two more exploratory wells within next few months to deliberate structure of the oilfield.

Rural Electrification Benefits Economy

Recent studies on the performance of the rural electrification in India indicate that rural electrification programme has been highly beneficial to the economy. The social benefit-cost ratio of the rural electrification programme has been consistently higher than their input.

Rural electrification programme started in 1951 By 1965-66 about 45,000 villages had been electrified and 5 lakh pumpsets energised. The corresponding figures by the end of March 1977 were 2 lakh and 30 lakh, respectively. During the current year about 20,000 villages are targetted to be electrified and 3,00,000 pumpsets energised

Employment-oriented Development

The Tripura government proposes to have an allocation of Rs. 125.70 crore during the next plan period for employment-oriented industrial development. The approach paper of the industries lays stress on the development of rural, agro-based, small and cottage industries, besides the development programmes in sericulture and handloom sectors. The employment generated through all these schemes is expected to touch 15,000. Of the total allocation, Rs. 70 crore has been earmarked for a paper mill, having an employment potential of at least 10,000.

Besides the proposal for setting up a 25,000 spindle spinning mill, the approach paper includes proposals for Rs. 5 crore for sericulture, Rs. 7 crore for weaving, Rs. 10 crore for small-scale industries and Rs. 10 crore for handloom and handicrafts.

(*Contd. from Cover two*)

therefore, increase the allocation of resources for soil conservation, land reclamation, afforestation, flood control and agricultural research and extension work.

There is urgent need to step up research work for the development of new high yielding varieties of seeds for pulses, coarse grains like bajra and jowar, sugar, raw cotton and oil seeds. Consolidation of holdings also greatly enhances the viability of small farms and, therefore, deserves national priority.

Government should take steps to see that all available organic manure is conserved and utilised for increasing agricultural production. Alternative fuel will have to be provided for the rural areas in order to conserve cowdung and prevent destruction of trees. Further, existing *choolhas* should be improved to achieve fuel economy.

Development blocks can perform genuine service to the farmers if they can organise farming families around rural development centres. These centres should provide at one place a market for agricultural produce, warehousing facilities, sale of agricultural inputs and services for repairing pump-sets and agricultural implements, spraying and supply of raw materials for cottage and small industries in the area. These centres should have market outlets in the urban areas. Farmers should be supplied with passbooks with up-to-date entries in respect of credit limits etc.

Power cuts should be equitably borne by all sectors; in the allocation of additional power generated, agriculture should be given priority. The system of levying fixed service charges by the irrigation and electricity authority should be reviewed with a view to ensuring that the burden is not unfair and unjust.

As the prices of agricultural produce will depend to a great extent on prices of agricultural inputs, reduction of the input prices is important. The party, therefore, recommends that the government take steps progressively to reduce excise duty so that the duties on fertilisers, pesticides and weedicides are completely abolished in the next three years.

The price to be paid to the farmers for his produce should be fixed according to the principle of parity, that is, maintenance of balance between prices received and prices paid by the farmers. A support price, which should be lower than the parity price. should be fixed below which it should be government's endeavour, through efficient purchase arrangements, to see that they do not fall.

Independent Peasant Farms

THE JANATA party believes that a system of small independent peasant farms assisted together by service cooperatives, will meet our needs or fulfil the aims of our economic policy best. It will produce more crops, provide employment for more workers, lead to more equitable distribution of wealth or avoidance of undue disparities in income and help strengthen democratic trends more than any other system of farming.

This system demands that every cultivator is given a stake in the land he holds, which means that he will be made its proprietor and no threat of ejectment will keep hanging over his head any longer. Unless those who work the land own it, all the rest is likely to be writ in water.

The Janata party recommends strongly that th[illegible] various items of land reforms legislation are ful[illegible] implemented within three years. A major portion [illegible] the surplus land and uncultivated government lan[illegible] available for distribution will be given to landl[illegible] scheduled castes and scheduled tribes people.

National interest demands that a floor on la[illegible] holdings is also laid and that the law relating [illegible] inheritance, transfer and partition of land is [illegible] amended that the area of land per farmer or agric[illegible] tural worker is not reduced below 2.5 acres. Th[illegible] will be possible, however, only if diversification [illegible] the economy and industrialisation proceeds at a pa[illegible] faster than the pace of population growth.

We recommend that government should consi[illegible] formulation of an agricultural policy statement a[illegible] logous to the statement on industrial policy.

The programme for speedy development of ru[illegible] infrastructure involving provision of pure drinki[illegible] water, adequate number of rural roads, rural elect[illegible] fication, dispensaries and schools assumes great i[illegible] portance. The party calls upon the government [illegible] allocate adequate funds for the development of ru[illegible] infrastructure in the next five years. A success[illegible] programme of this type will make a major contri[illegible] tion to improving the quality of rural life and p[illegible] venting premature excessive migration to the ur[illegible] areas. Each state should, to begin with, select [illegible] least two districts for intensive development. F[illegible] for work programmes and employment guaran[illegible] schemes should first be implemented in these distri[illegible]

The productive activities on which we sho[illegible] concentrate in the rural areas must include constr[illegible] tion of roads, planting of trees, tanks, wells, lift irri[illegible] tion and other water conservation schemes, levell[illegible] of soil, bunding, bringing new land under cultivati[illegible] construction of gobar gas plants and so on. Anim[illegible] husbandary has great possibility and this occupat[illegible] can be fully decentralised

An effective programme of implementation m[illegible] necessarily have the support and assistance of [illegible] state governments. It is also our firm conviction t[illegible] planning and national development must go hand [illegible] hand with a participative style of democracy.

IN ANY long-term strategy of development we [illegible] not overlook the imperative need for industr[illegible] sation. The primacy of agriculture to which the p[illegible] is firmly committed must not be seen as a bias ag[illegible] industry or neglect of the longer term perspectiv[illegible] development It simply reflects an awareness tha[illegible] the present state of India's development, a sust[illegible] increase in agricultural productivity is almost a [illegible] condition for further advance in industry. So lon[illegible] India's rural masses remain poor the market for in[illegible] trial goods must remain severely restricted.

The Janata party believes that, even after me[illegible] the capital requirements of rural areas, it will be p[illegible] ble as well as desirable to provide substantial reso[illegible] for development of vital industries needed for ex[illegible] sion of agriculture like fertilisers, pesticides, ce[illegible] and agricultural implements. It will also be nece[illegible] to devote substantial resources for developme[illegible] transport and, especially, power in the next five y[illegible] With this end in view the national resources of e[illegible] such as water, oil, solar energy and nuclear [illegible] will have to be speedily developed. In additio[illegible] will be desirable to push ahead with the develop[illegible] of such resource-based industries as steel and alumi[illegible]

(*Contd. on Cover* [illegible])

Industry Must Generate Surpluses

(Contd. from Page 34)

In view of the present needs of investible resources for agricultural and rural development, both the public sector and the organised private sector must generate surpluses and use their own internal resources for growth and expansion. This would imply that their productive efficiencies must improve and their pricing and output policies must be so adjusted as to generate surpluses. **These surpluses should not be thrown away by way of indiscriminate distribution of dividends and bonus and increasing the perks and amenities of the top people.** These surpluses must be saved and invested for growth and expansion thus relieving the public exchequer and the banking system of the need for continuously channelising further investible funds, which can then be diverted towards agricultural development and building up cottage and decentralised industries.

In areas reserved for small-scale industry future capacity should not be permitted in the large-scale sector. In order to encourage small entrepreneurs and self-employed people, administrative procedures will have to be simplified.

In deciding on the question of reservation, government will have to keep in mind considerations of employment generation, broad-basing the pattern of entrepreneurship as well as economy in the scale of operations.

We must continue to encourage *khadi* which was associated with the struggle for national independence and which provides employment for a considerable number of people. Credit and technical assistance should be provided to small-scale and cottage industries on a liberal scale so as to enable them to improve both their technique of production and marketing of their products. Modern management techniques and quality control must be introduced. The party would like the government to clearly demarcate the areas of reservation for the small-scale and cottage industries which use power and cottage industries which use no power.

The party's policy will be: what can be produced by cottage industry shall not be produced by the small-scale or large-scale sector, what can be produced by the small-scale sector shall not be open for large-scale industry. The reservation of fields must be clear and, where necessary, statutorily defined. The only exception that may be considered will be for production that is entirely for export.

THE JANATA party, therefore, proposes that till full employment has been achieved, no new capital intensive enterprises shall be allowed to be established for manufacturing any consumer and other goods which will be statutorily reserved for production by cottage or village or small-sector. The government should not permit any expansion in the weaving capacity in the organised mills sector. New weaving capacity should be created only in the decentralised sector consisting of, first, handlooms and, second, powerlooms whose ownership should be widely diffused. Weaving and production of footwear and soaps and, if possible, other articles, in the organised sector should be progressively reduced so that the entire weaving and production of footwear and soap is allocated to decentralised sector within a 10 year phased programme.

It is essential that all metropolitan areas, cities and towns produce a regional plan which will scientifically disperse congestion of industry and people without destroying the natural aesthetic. Provision should be made for slum improvement, housing for the poor and the displaced slum-dwellers and, where possible, allotment of house sites for them. In doing so, care should be taken to ensure that they do not have to travel long distances to their places of employment.

To prevent concentration of industries in a few large urban centres, the government should prohibit the starting of new industries in urban centres with a population of 10 lakhs or more or in the environs of these centres within a radius of 15 to 20 kms.

The government should provide infrastructure facilities including power in selected places so that industries can be diverted to these areas. A system of standardised components, parts and ancillaries should be increasingly adopted so that quite a substantial portion of the production processes can be decentralised.

Constructional activity like laying of new railway lines, irrigation, road building and housing has a very large employment potential. This activity is also important from the point of view of social needs. It will also stimulate demand of steel and other materials for which the demand is at present very slack. All restrictions on house building must, therefore, be removed and individual initiative and cooperative endeavour must be given full play to meet this pressing social need. Encouragement must be given to house building activity *of* the common people and also *for* the common people. However, construction of lavish and luxury flats should not be allowed. At the same time, production of cement and other building materials like bricks and mortar should be rapidly increased so that shortages and black markets do not reappear. Public authorities should give special priority to construction of houses for the economically and socially backward, including harijans and adivasis.

INDIA HAS a huge internal market of over 600 million people. The potentialities of this market are vast. Besides, India is well endowed with basic natural resources. In planning for self-reliance, we should concentrate in those areas where we have comparative advantage and where we can produce goods economically and profitably at low cost both for the domestic and external markets. Without expanding the internal market and increasing the volume of production for domestic consumption, neither can costs be brought down nor can our goods be made competitive in external markets. The question of self-reliance has also to be approached from the point of view of generating employment. Thirdly, considerations of natural strategy would also necessitate self-reliance in certain critical and strategic areas. In other areas, where production in the country would be uneconomical, producer and mass consumption goods which are in short supply may be imported from the cheapest sources as part of the overall strategy of containing inflation and bringing down price levels. But this should be counterbalanced by strong export efforts. The Janata party would like to caution that due care must be taken to ensure that the export drive does not cause scarcities of critical commodities and essential articles of consumption in the domestic market.

(Contd. on Cover four)

Attack on Monopoly

(*Contd. from Cover three*)

The Janata party will not go in for foreign collaboration in areas where adequate Indian skills and capital are available. Wherever the need for foreign collaboration is felt in areas of high priority, emphasis should be on purchasing outright technical know-how, technological skills, and machinery.

[illegible] provisions of FERA must be rigorously en- [illegible] in the sector of consumer goods industries. The [illegible] firms should be asked to carry forward the [illegible] of Indianisation. Their production capacities also should be frozen at the existing levels

The party would commend the example of Japanese industries which brought about astonishing expansion without providing any significant role for foreign equity capital. The Japanese imported the best available technology and then adapted it to their own needs. We call upon our scientists and technologists to evolve a forward-looking, small unit technology suited to our condition and needs.

The entire strategy of development must seek to achieve the widest possible dispersal of ownership of property and the means of production

A PECULIAR feature of the post-independence industrial development has been the dominance of about twenty industrial houses These industrial groups have used their entrepreneurial resources, their connections with the administration and their capacity to manipulate, to frustrate measures designed to curb concentration of wealth The Government may allow these industrial groups to expand only in those areas where such expansion is clearly in the national interest and in accord with national priorities The government should not, however, permit any company or group of companies to have a dominant share of the market in what they produce nor should it allow these companies to be in a position to dictate terms to producers, raw material suppliers and consumers In order to break the monopolist stranglehold of a group of companies or inter-connected companies over the market in the goods they produce, these inter-connections or groups will have to be broken, and the law must unambiguously empower the authorities to do this so that unnecessary litigation on this subject is avoided It should be the policy of the government to encourage new entrepreneurs in new lines of industrial activity and, by systems of progressive taxation on income and wealth as well as direct measures, curb the concentration of economic power

The party commends to government a price policy with the following essential ingredients : a firm control over money supply ; incentive prices designed to secure an adequate increase in the production of basic consumption goods ; timely arrangements for import of commodities in short supply ; a well-functioning public distribution system , and stringent action against unscrupulous traders and hoarders

Remunerative procurement prices must be seen as an essential element of increasing agricultural production and of stabilising prices, particularly of pulses, raw cotton and oilseeds.

THE ESTABLISHMENT of a marketing network will ensure the availability of goods to the common man. The public distribution system would have to be extended to all areas of the country. It must distribute through its network cereals, pulses, cc oils, sugar, textiles and kerosene. The public distr tion system in the rural areas should be based panchayats-*cum*-cooperatives. In towns it sh increasingly use consumer cooperatives. A functio public distribution system presupposes procurem by the state of large supplies of the essential arti

Economy must be the watchward of governme organisations. Drastic cut in non-developmental penditure is necessary to divert resources for deve ment. There should be a clear realisation that cost today are incredibly heavy and a poor country, seel to pull itself up by its shoe-strings can ill-afford th

A literacy army will help in tackling the problen unemployment among the educated youth and a l army in solving the problem of rural unemploym

It should be possible to provide high protein f to an increasingly larger number of children thr the use of products based on groundnut flour prep from groundnut cakes after extraction of oil and f soyabeans In particular the mid-day meals which at present available to only a small section of sc children should be progressively supplied to all

Family planning programmes must be integrated a programme for health care. Success of family p ning is vitally linked with the spread of educa among women and a rise in their status in our soci

AN APPROPRIATE fiscal policy must keep in n five considerations the people have to ac the burden of higher taxation needed for investm taxation policy must simultaneously aim at redistribu justice and must take into consideration the capa to pay , there is urgent need for simplification rationalisation of the tax administration , taxes n have an in-built growth potential and inherent b yancy ; and taxation policy must aim at stimula growth and must encourage production and savi

The party wants the minimum incomes to steadily so that the difference between the min and the maxima, after tax is reduced to 1 : 20, ultimate objective being to reduce this differentia 1 : 10 The party notes that the government have up a study group but the terms of reference do not pressly cover the question of minimum wage for a cultural labourers and income disparities and lim tion of personal consumption. The party hopes group will take into account claims of social jus

THE PEOPLE have also to be made to realise Mahatma Gandhi taught us, that rights flow out of duties well performed. We will have to pay costs for economic development whether we live democratic society or are governed by dictatorship. only difference is that in a democracy the costs willingly borne ; in a dictatorship, they are extra These costs will have to be paid in the form of work, discipline and integrity.

Unless the nation agrees to defer present consu tion and undertakes large savings and investment e the existing opportunities for expansion canno exploited. The upper classes and elite will have t an example in this regard. Unless these classes giv ostentation and display of wealth, unless they a to make sacrifices proportionate to their wealth responsibility, the common people cannot be ask exercise self-restraint or moderate sectional dem

Printed by the Manager, Govt of India Press, Ring Road, New Delhi-110064 and Published by the Director, Publications Division, Patiala House, New Delhi-110001.